TENNESSEE DEPARTMENT OF ENVIRONMENT AND CONSERVATION
DIVISION OF WATER POLLUTION CONTROL
APPLICATION FOR AQUATIC RESOURCE ALTERATION PERMIT (ARAP)
&
STATE §401 WATER QUALITY PERMIT APPLICATION

ARC Automotive, Inc. Processing Facility Project
Hartsville, Tennessee

PREPARED FOR:

ARC Automotive, Inc.

PREPARED BY:

---

211 Commerce Street, Suite 600
Nashville, Tennessee 37201
615-254-1500
615-255-2572 (fax)

BWSC Barge Waggoner Sumner & Cannon, Inc.

Revision 3

November 2014

SECTION 6. PROJECT DESCRIPTION

6.1 A narrative description of the scope of the project

ARC Automotive, Inc. has purchased a portion of land surrounding the Hartsville nuclear power plant from the Four Lake Regional Authority and is proposing the development of this land for commercial use. Specifically, this project proposes nineteen new buildings and requires the installation of a gravel roadway, parking lot, sewer lift station, storm culvert and electric service to the buildings. The effects to the stream will be from the addition of a culvert and installation of a sanitary sewer main.

6.2 USGS topographic map indicating the exact location of the project

This project is situated in Hartsville Metro and Trousdale County within the Hartsville topographic quadrangle and is within the Outer Nashville Basin ecoregion of Tennessee. Please see Attachment B for project location figure (Figure 1).

6.3 Photographs of the resource(s) proposed for alteration with location description (photos should be noted on map)

Please see Attachment C for photographs of the stream – locations of photographs are noted on a map (Figure 2).

6.4 A narrative description of the existing stream and/ or wetland characteristics including, but not limited to, dimensions (e.g. depth, length, average width), substrate and riparian vegetation

Table 1
Wetland and Waterbodies in Project Vicinity

Name	Waterbody Description	Latitude	Longitude	Stream Flow	Cowardin Class	Estimated amount of aquatic resource in review area
Tributary to the Cumberland River	Stream	36.353920°	86.085922°	No	NA	35 ln ft.

The stream, a tributary to Cumberland River, is approximately 2,000 linear feet north of the Cumberland River at the confluence of Dixon Creek, where the stream drains. The site is the remains of a nuclear power plant effort in the 70's and the stream appears to be man-made. The dimensions of the stream are 2 feet at bottom width, 6 feet at top width and 1.5 feet deep. Existing vegetation includes natural grass ranging from a few inches to several feet in height. A topographic figure is included in Attachment B, Figure 3.

6.5 A narrative description of the proposed stream and/ or wetland characteristics including, but not limited to, dimensions (e.g. depth, length, average width), substrate and riparian vegetation

The impact of the proposed activity will affect approximately 35 linear feet, but the original stream dimensions will be maintained. See Attachment D for detailed plans of the current and proposed stream.

6.6 Include wetland delineation with delineation forms and site map denoting location of data points

According to the National Wetlands Inventory (NWI), wetlands exist in the surrounding areas to the proposed site location (specifically, a half kilometer east and another one kilometer southwest) and the Department of Army has issued a Preliminary Jurisdictional Determination, Attachment E, outlining the determination and class of wetland areas. A watershed image is included in Attachment B as Figure 4 and a Wetland image is included in Attachment B as Figure 5.

6.7 A copy of all hydrologic or jurisdictional determination documents issued for water resources on the project site.

Based on the existing hydrology, geomorphology and biology, the waterbody was determined to be a stream. No jurisdictional documents have been issued for the water resources on the project site.

SECTION 7. PROJECT RATIONALE

Describe the need for the proposed activity, including, but not limited to, the purpose, alternatives considered, and what will be done to avoid or minimize impacts to streams and wetlands.

The purpose of the proposed activity is to construct an industrial processing facility on the unused land surrounding the nuclear power plant site. Steps have been taken to minimize the impact to streams and wetlands. The layout includes one road and one sewer main crossing the stream at a 90 degree angle and no buildings constructed on streams or wetlands.

SECTION 8. TECHNICAL INFORMATION

8.1 Detailed plans, specification, blueprints, or legible sketches of present site conditions and the proposed activity, Plans must be 8.5x 11 inches. Additional larger plans may be submitted to aid in application review. The detailed plans should be superimposed on existing and new conditions (e.g. stream cross sections where road crossings are proposed).

Detailed plans are provided in Attachment D of this application packet, which show the measures and materials proposed to reinforce the stream.

Where appropriate, the following information is provided in the detailed drawings:

- Existing and proposed drainage patterns and slopes
- Proposed building locations

8.2 For both the proposed activity and compensatory mitigation, provide a discussion regarding the sequencing of events and construction methods.

Approximately 35 linear feet will be disturbed as a result of the ARC Automotive, Inc. land development. During construction, water will be diverted from upstream and routed to downstream of the in-stream construction zone through the installation of by-pass pumps. Upon installation of the culvert, the site will be graded. The nature and sequence of the stream activity will include the following:

1. Construct temporary dam upstream
2. Install by-pass pumps
3. Install temporary erosion control measures
4. Perform clearing and grubbing
5. Install fill in bottom of channel
6. Grade slopes and install anchored reinforced vegetation mats

8.3 Depiction and narrative on the location and type of erosion prevention and sediment control (EPSC) measures for the proposed alteration.

The contractor will implement and maintain all EPSC measures throughout the duration of the project. All work will be done in dry conditions; the contactor will make provisions to keep storm water, lateral water and ground water out of construction activities. The contractor will dewater the site as necessary so that placement of all rip-rap, grouting of any rip-rap, placement of gravity wall section, and other erosion control material are completed in dry conditions.

SECTION 9. WATER RESOURCES DEGRADATION

The culvert and sewer main will be installed with minimal impact to the stream and the permanent vegetation will be restored to its original quality upon completion of all construction.

SECTION 10. DETAILED ALTERNATIVE ANALYSIS

10.1 Analyze all reasonable alternatives and describe the level of degradation caused by each of the feasible alternatives.

The development plans are restrictive for this project and are regulated by other industries. The proposed buildings are necessary for the processing facility to be operable, therefore instead of alternatives to the construction plans, the design and layout of the site was considered. Decisions were made to minimize the impact of the development on surrounding streams and wetlands. No changes to the stream, except those necessary to install a culvert and sewer main, are proposed.

10.2 Discuss the social and economic consequences of each alternative

Overall, this development will have a long-term positive impact on social and economic values. Currently, the land is unused, as it is the site of a previously anticipated nuclear power plant. The construction of this facility will add value to the local economy and bring commerce. The stream in question is man-made and the length and dimensions will be maintained upon addition of the culvert and sewer with minimal damage to the existing stream.

10.3 Demonstrate that the degradation associated with the preferred alternative will not violate water quality criteria for users designated in the receiving waters, and is necessary to accommodate important economic and social development in the area.

The stream is a man-made stream with minimal vegetation located on a previous industrial site. All actions will be taken to allow minimal impact to the site. The permanent vegetation will be restored to original quality once construction is complete.

SECTION 11. COMPENSATORY MITIGATION

11.1 A detailed discussion of the proposed compensatory mitigation

N/A

11.2 Describe how the compensatory mitigation would results in no net loss of resource value

N/A

11.3 Provide a detailed monitoring plan for the compensatory mitigation site

N/A

11.4 Describe the long-term protection measures for the compensatory mitigation site

N/A

ARC Automotive, Inc. Processing Facility Project
Hartsville, Trousdale County, Tennessee
Section 401 Permit Application Packet

List of Contents

List of Figures

Attachment A
401 Permit Application

TENNESSEE DEPARTMENT OF ENVIRONMENT AND CONSERVATION
Division of Water Resources
William R. Snodgrass Tennessee Tower, 312 Rosa L. Parks Avenue, 11th Floor, Nashville, Tennessee 37243
1-888-891-8332 (TDEC)

Application for Aquatic Resource Alteration Permit (ARAP) & State §401 Water Quality Permit

OFFICIAL STATE USE ONLY	Site #:		Permit #:	

Section 1. Applicant Information *(individual responsible for site, signs certification below)*

Applicant Name: Mr. Robb Isbell				
Company: ARC Automotive		Signatory's Title or Position: Program Manager		
Mailing Address: 1729 Midpark Road, Suite 100		City: Knoxville	State: TN	Zip: 37921
Phone: (865) 583-7842	Fax: (615) 583-7702	E-mail: robb.isbell@arc-cpcn.com		

Section 2. Alternate Contact/Consultant Information (*a consultant is not required*)

Alternate Contact Name: Jennifer Speich				
Company: Barge, Waggoner, Sumner and Cannon, Inc.		Title or Position: Project Manager		
Mailing Address: 211 Commerce St., Suite 600		City: Nashville	State: TN	Zip: 37201
Phone: (615) 252-4331	Fax: (615) 255-6842	E-mail: jennifer.speich@bwsc.net		

Section 3. Fee *(check appropriate box and submit requisite fee with application)*

☐ No Fee Submitted ☒ Fee Submitted with Application Amount Submitted: $ 500.00

Current fee schedules for Aquatic Resource Alteration Permit processing may be found at the Division of Water Resources webpage at http://www.tn.gov/environment/permits/arap.shtml or by calling (615) 532-0625. Make checks payable to "Treasurer, State of Tennessee".

Section 4. Project Details *(fill in information and check appropriate boxes)*

Site or Project Name: ARC Automotive, Inc. Processing Facility Project	Nearest City, Town or Major Landmark: Hartsville, TN	
Street Address or Location: 200 Smith Way		
County(ies): Trousdale	MS4 Jurisdiction: Metro Hartsville	Latitude (dd.dddd): 35.3563
		Longitude (dd.dddd): -86.0874

Resource Proposed for Alteration: ☒ Stream ◉ Wetland ☐ Reservoir

Name of Water Resource: Cumberland River

Brief Project Description (a more detailed description is required under Section 8):
Construction of an office, shippng and receiving building, and associated buildings for a processing facility including associated roadways and infrastructure.

Does the proposed activity require approval from the U.S. Army Corps of Engineers, the Tennessee Valley Authority, or any other federal, state, or local government agency? ☒ Yes ☐ No

If Yes, provide the permit reference numbers: In process of application

Is the proposed activity associated with a larger common plan of development? ☐ Yes ☒ No

If Yes, submit site plans and identify the location and overall scope of the common plan of development. Plans attached? ☐ Yes ☐ No

If applicable, indicate any other federal, state, or local permit authorizations that the overall project site (common plan of development) has obtained in the past (i.e. construction general permit coverage and/or other ARAPs):
USACE NWP-14
TDEC Construction General Permit for Stormwater Discharge (NOI/SWPPP)

Section 5. Project Schedule *(fill in information and check appropriate boxes)*

Start date: September 2014	Estimated end date: June 2015

Is any portion of the activity complete now? ☐ Yes ☒ No If yes, describe the extent of the completed portion:

Application for Aquatic Resource Alteration Permit (ARAP) & State §401 Water Quality Permit

The required information in Sections 6-11 must be submitted on a separate sheet(s) and submitted in the same numbered format as presented below. If any question in not applicable, state the reason why it is not applicable.

Section 6. Project Description		**Attached**	
		Yes	**No**
6.1	A narrative description of the scope of the project	☒	☐
6.2	USGS topographic map indicating the exact location of the project (*can be a photographic copy*)	☒	☐
6.3	Photographs of the resource(s) proposed for alteration with location description (*photo locations should be noted on map*)	☒	☐
6.4	A narrative description of the **existing** stream and/or wetland characteristics including, but not limited to, dimensions (e.g., depth, length, average width), substrate and riparian vegetation	☒	☐
6.5	A narrative description of the **proposed** stream and/or wetland characteristics including, but not limited to, dimensions (e.g., depth, length, average width), substrate and riparian vegetation	☒	☐
6.6	In the case of wetlands, include a wetland delineation with delineation forms and site map denoting location of data points	☐	☒
6.7	A copy of all hydrologic or jurisdictional determination documents issued for water resources on the project site	☒	☐

Section 7. Project Rationale	**Attached**	
	Yes	**No**
Describe the need for the proposed activity, including, but not limited to, the purpose, alternatives considered, and what will be done to avoid or minimize impacts to streams or wetlands.	☒	☐

Section 8. Technical Information		**Attached**	
		Yes	**No**
8.1	Detailed plans, specifications, blueprints, or legible sketches of present site conditions and the proposed activity. Plans must be 8.5.x 11 inches. Additional larger plans may also be submitted to aid in application review. The detailed plans should be superimposed on existing and new conditions *(e.g., stream cross sections where road crossings are proposed)*	☒	☐
8.2	For both the proposed activity and compensatory mitigation, provide a discussion regarding the sequencing of events and construction methods	☒	☐
8.3	Depiction and narrative on the location and type of erosion prevention and sediment control (EPSC) measures for the proposed alterations	☐	☒

Section 9. Water Resources Degradation (degree of proposed impact) *Note that in most cases, activities that exceed the scope of the General Permit limitations are considered greater than de minimis degradation to water quality.*

My activity, as proposed:

a. ☒ Will not cause measurable degradation to water quality

b. ☐ Will only cause de minimis degradation to water quality

c. ☐ Will cause more than de minimis degradation to water quality (*Complete additional sections 9-11)*

d. ☐ Unsure/need more information

For information and guidance on the definition of de minimis and degradation, refer to the Antidegradation Statement in Chapter 0400-40-03-.06 of the Tennessee Water Quality Criteria Rule: https://www.tn.gov/sos/rules/0400/0400-40/0400-40-03.20131216.pdf. For more information on specifics on what General Permits can cover, refer to the Natural Resources Unit webpage at http://www.tn.gov/environment/permits/arap.shtml

If you checked "c." above in Section 9, complete the following 2 sections, 10-11.

Section 10. Detailed Alternative Analysis		**Attached**	
		Yes	**No**
10.1	Analyze all reasonable alternatives and describe the level of degradation caused by each of the feasible alternatives	☒	☐
10.2	Discuss the social and economic consequences of each alternative	☒	☐
10.3	Demonstrate that the degradation associated with the preferred alternative will not violate water quality criteria for uses designated in the receiving waters, and is necessary to accommodate important economic and social development in the area	☒	☐

Application for Aquatic Resource Alteration Permit (ARAP) & State §401 Water Quality Permit

Section 11. Compensatory Mitigation		Attached Yes	Attached No
11.1	A detailed discussion of the proposed compensatory mitigation	☐	☒
11.2	Describe how the compensatory mitigation would result in no net loss of resource value	☐	☒
11.3	Provide a detailed monitoring plan for the compensatory mitigation site	☐	☒
11.4	Describe the long-term protection measures for the compensatory mitigation site *(e.g., deed restrictions, conservation easement)*	☐	☒

Certification and Signature

An application submitted by a corporation must be signed by a principal executive officer; from a partnership or proprietorship, by the partner or proprietor respectively; from a municipal, state, federal or other public agency or facility, the application must be signed by either a principal executive officer, ranking elected official, or other duly authorized employee.

"I certify under penalty of law that this document and all attachments were prepared by me, or under my direction or supervision. The submitted information is to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. As specified in Tennessee Code Annotated Section 39-16-702(a)(4), this declaration is made under penalty of perjury".

Robb Isbell	Program Manager		5/1/14
Printed Name	Official Title	Signature	Date

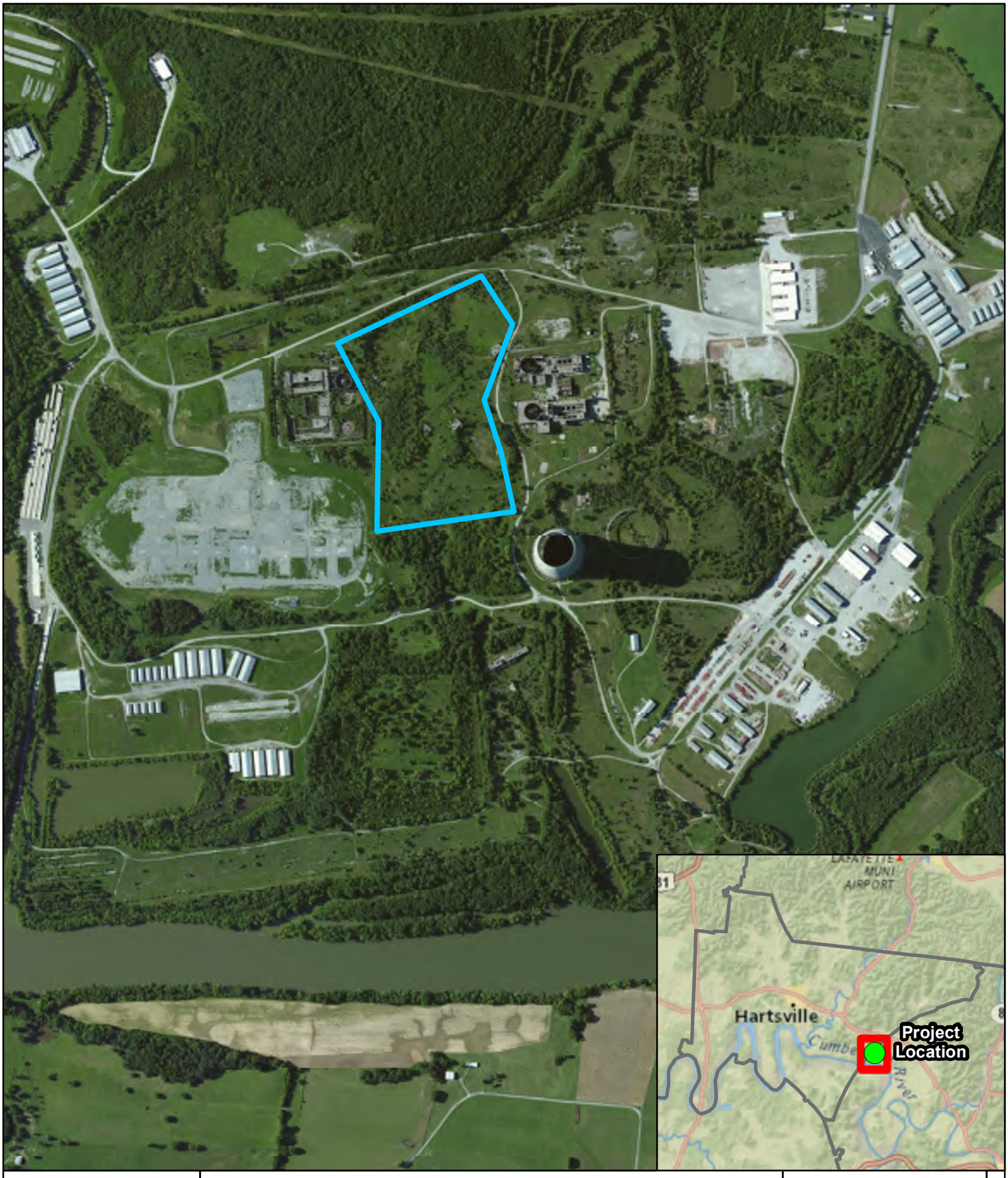
Submitting the form and obtaining more information Note that this form must be signed by the principal executive officer, partner or proprietor, or a ranking elected official in the case of a municipality; for details see **Certification and Signature** statement above. For more information, contact your local EFO at the toll-free number 1-888-891-8332 (TDEC). Submit the completed ARAP Application form (keep a copy for your records) to the appropriate EFO for the county(ies) where the ARAP activity is located, addressed to **Attention: ARAP Processing**. You may also electronically submit the complete application and all associated attachments (e.g., maps, wetland delineations and narrative portions) to water.permits@tn.gov.

EFO	Street Address	Zip Code	EFO	Street Address	Zip Code
Memphis	8383 Wolf Lake Drive, Bartlett	38133-4119	Cookeville	1221 South Willow Ave.	38506
Jackson	1625 Hollywood Drive	38305-4316	Chattanooga	540 McCallie Avenue STE 550	37402-2013
Nashville	711 R S Gass Boulevard	37243	Knoxville	3711 Middlebrook Pike	37921
Columbia	1421 Hampshire Pike	38401	Johnson City	2305 Silverdale Road	37601

OFFICIAL STATE USE ONLY

Received Date:	Permit Number:	Reviewer:	Field Office:
Fee amount paid:	T & E Aquatic Flora and Fauna:	Impaired Receiving Stream:	Application Review:
Date:			☐ Deficient Date:
Check #:	Exceptional TN Water:		☐ Complete Date:

Attachment B
Figures



1,000
Feet

1 inch = 1,000 feet
Tennessee State Plane (feet) 4100fips
North American Datum 1983

N

BWSC

Location Map

ARC Automotive, Inc. Processing Facility Project

Hartsville, Trousdale County, Tennessee

Project Site

Figure 1

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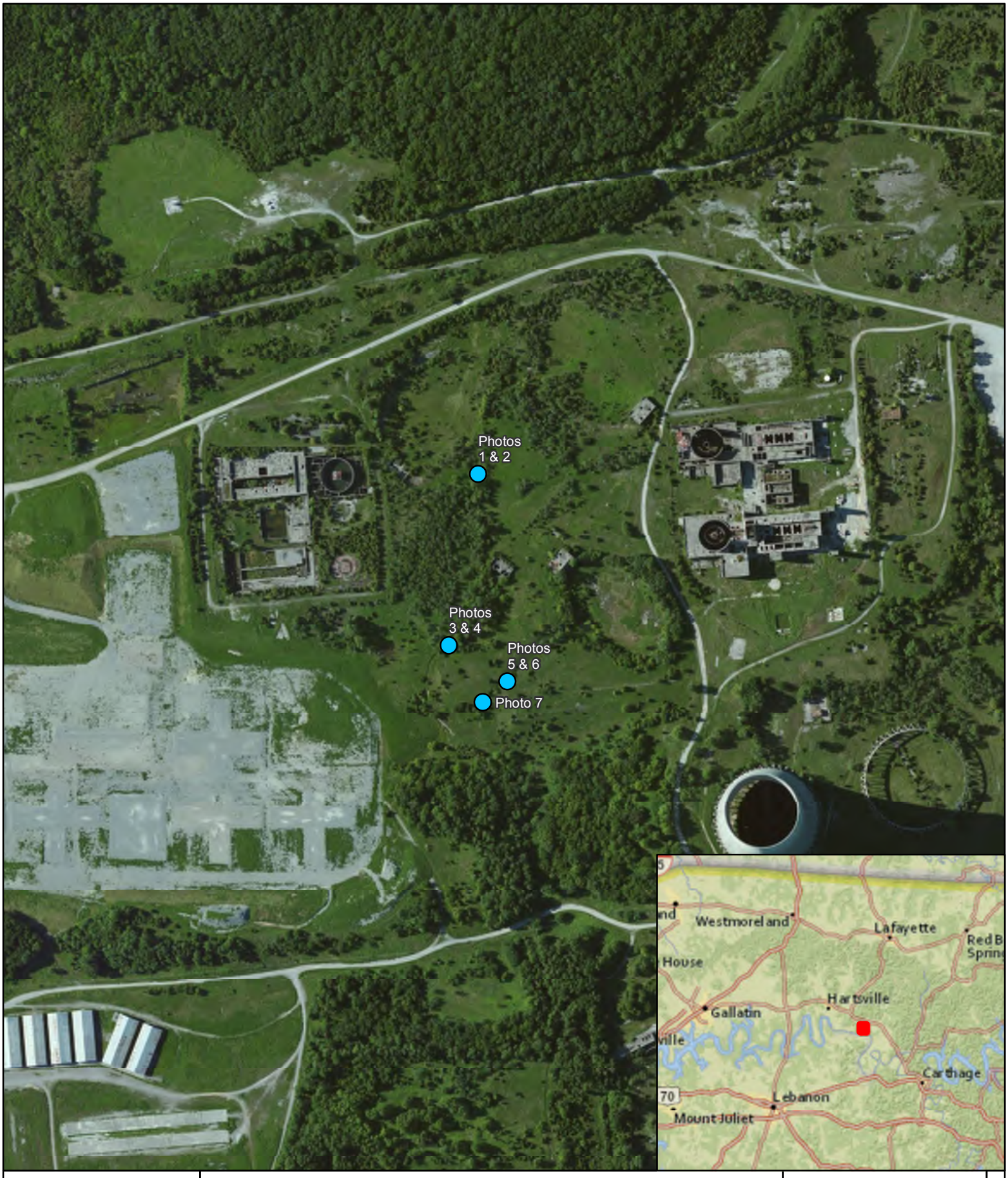

500
Feet
1 inch = 500 feet
Tennessee State Plane (feet) 4100fips
North American Datum 1983

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Photo Location Map

ARC Automotive, Inc. Processing Facility Project

Hartsville, Trousdale County, Tennessee

Photo Locations

Figure 2

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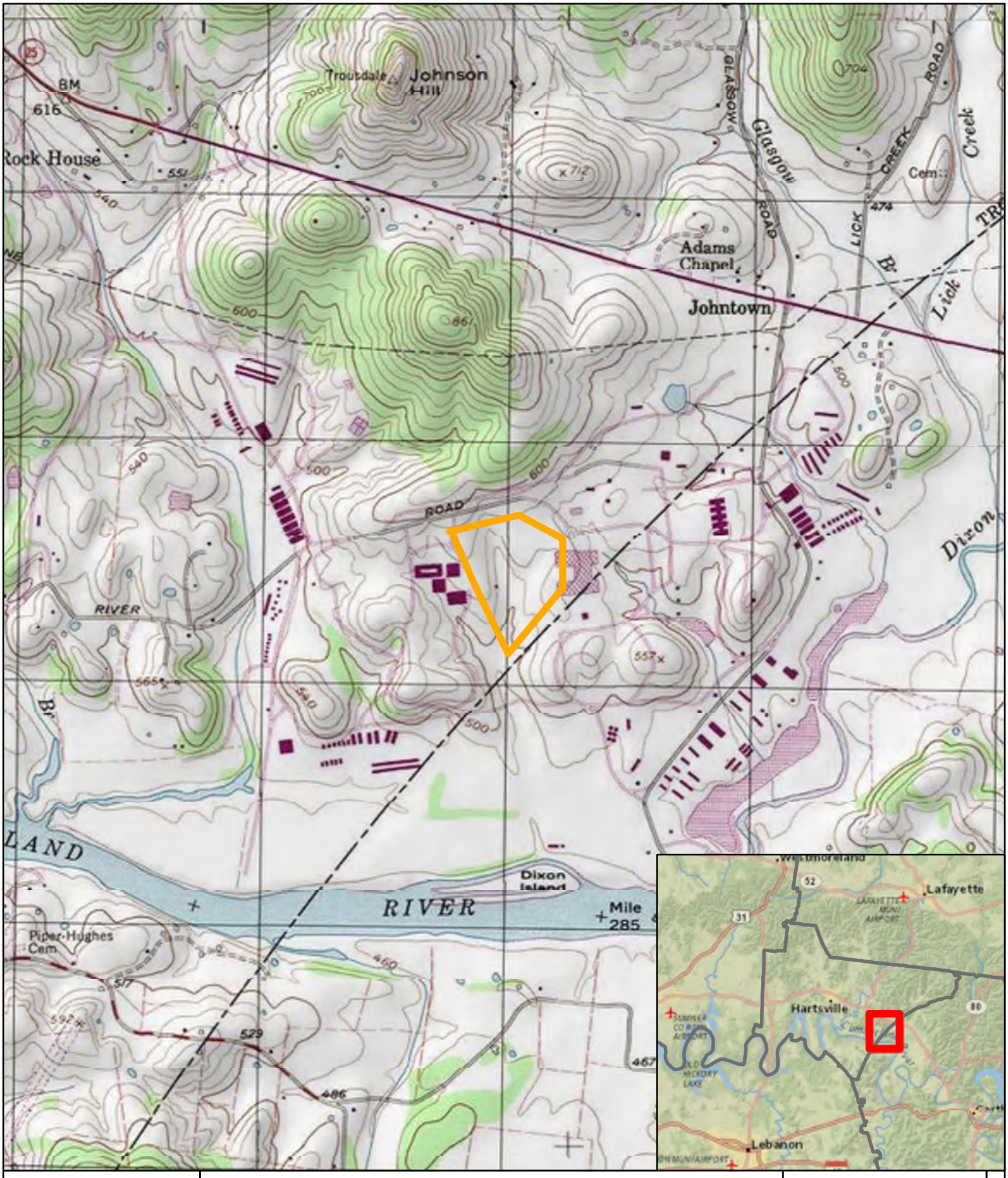

1,667 Feet 1 inch = 1,667 feet Tennessee State Plane (feet) 4100fips North American Datum 1983 N	USGS Topo	Project Site
BWSC	ARC Automotive, Inc. Processing Facility Project **Hartsville, Trousdale County, Tennessee**	Figure 3

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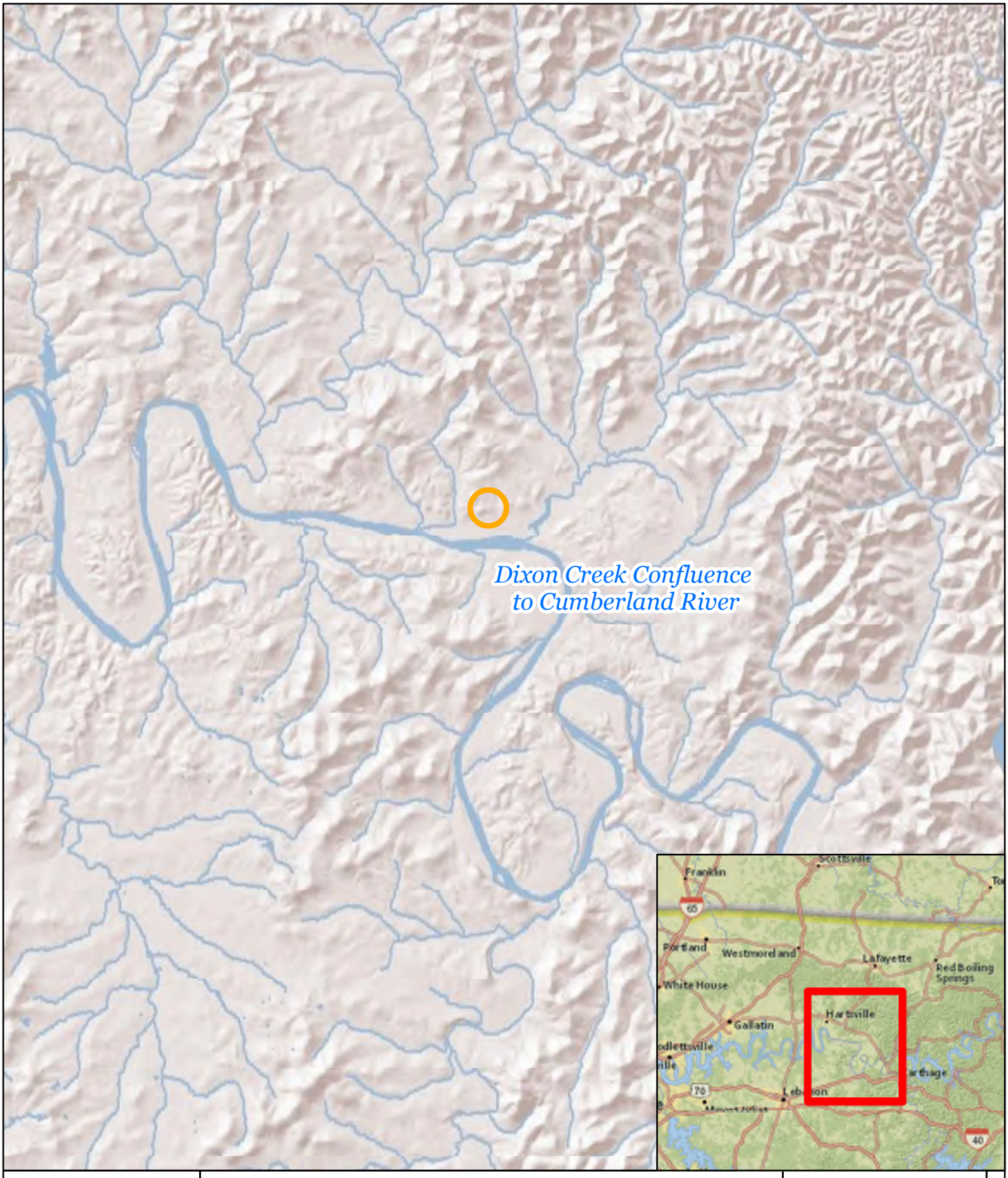

10,000
Feet
1 inch = 10,000 feet
Tennessee State Plane (feet) 4100fips
North American Datum 1983

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Watershed Map

ARC Automotive, Inc. Processing Facility Project

Hartsville, Trousdale County, Tennessee

Project Site

Watershed Boundary

Figure 4

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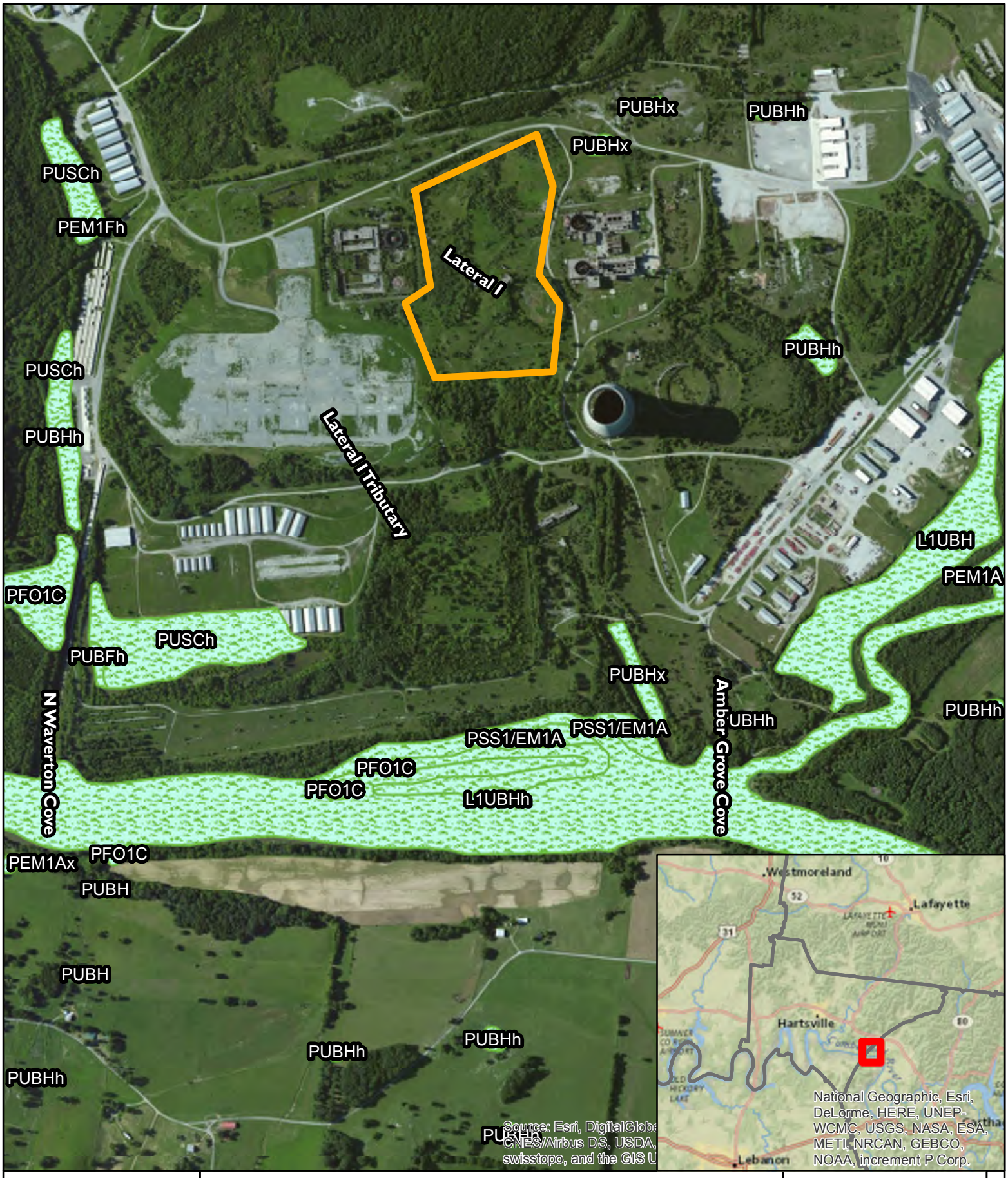

1,000
Feet

1 inch = 1,000 feet
Tennessee State Plane (feet) 4100fips
North American Datum 1983

N

BWSC

National Wetland Inventory (NWI) Wetlands Map

ARC Automotive, Inc. Processing Facility Project

Hartsville, Trousdale County, Tennessee

Project Site

NWI Wetlands

Figure 5

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Date: 03 July 2014

Attachment C
Photo Summary

ARC Stream Crossings

Photo 1 and Photo 2 are of the proposed site for the installation of the culvert. At this location the stream is 2 feet wide and 6 inch deep. The exact location is (36.3546, -86.0867).

Photo 1: Looking North from location where proposed culvert will be added.

Photo 2: Looking South from location where proposed culvert will be added.

Photo 3 and Photo 4 show the site of the first stream crossing. The stream is 4 feet wide and 18 inches deep at this crossing and located at (36.3527, -86.0871).

Photo 3: Looking northeast from the location of the first stream crossing

Photo 4: Looking Southwest from the location of the first stream crossing

Photo 5 and Photo 6 show the site of the second stream crossing. The stream is 2 feet wide and 18 inches deep and is at exact location (36.3523, -86.0863).

Photo 5: Looking East from the location of the second stream crossing

Photo 6: Looking West from the location of the second stream crossing

Photo 7 shows an alternative location for the second stream crossing. Here the stream measures 1 foot wide and 6 inches deep. The location is (36.352, -86.097).

Photo 7: Looking East from the alternative location of the second stream crossing

Attachment D
Detailed Plans

CONSTRUCTION PLANS
FOR THE
ARC
200 SMITH WAY, HARTSVILLE, TN 37074

CONTACTS

OWNER: ARC AUTOMOTIVE INC.
1729 MIDPARK ROAD, SUITE 100
KNOXVILLE, TN 37921

CONTACT: ROBB ISBELL 865-583-7842

CIVIL ENGINEER: BARGE, WAGGONER, SUMNER AND CANNON
211 COMMERCE STREET, SUITE 600
NASHVILLE, TENNESSEE 37201
CONTACT: JIMMY WISEMAN, P.E. (615-252-4337)

SURVEYOR: CARROLL CARMAN, SURVEYING
150 MIDDLE FORK ROAD
HARTSVILLE, TENNESSEE

PHONE: (615) 374-3344

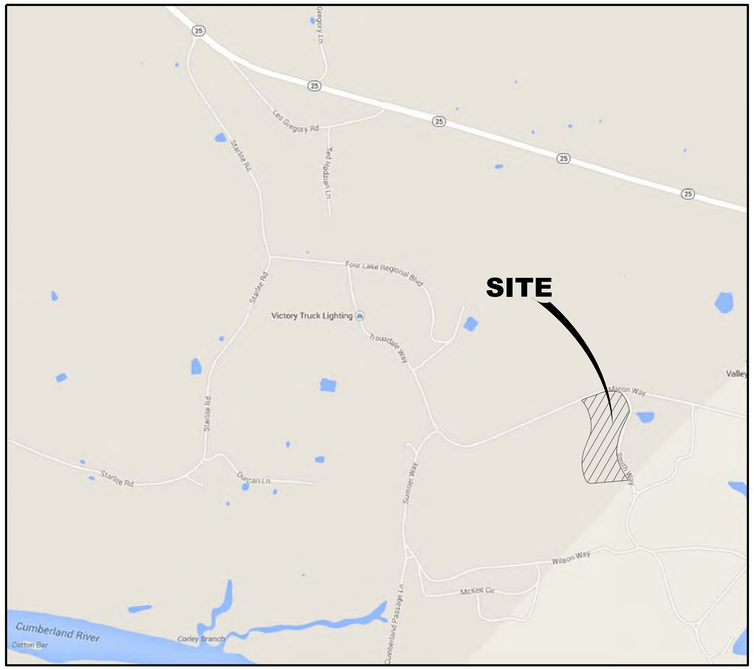
DISTRICT

LOCATED IN THE 1ST CIVIL DISTRICT OF TROUSDALE COUNTY, TENNESSEE AND
ALSO LOCATED IN THE 4TH CIVIL DISTRICT OF SMITH COUNTY, TENNESSEE

MAP AND PARCEL NUMBERS

MAP 34, PAR. 22.02 P/O, T.A.O.T.C.T.
MAP 21, PAR. 22.01 P/O, T.A.O.S.C.T.

DEVELOPMENT SUMMARY	
PROJECT NAME	ARC
SUBMITTAL DATE	09/09/2014
MAP / PARCEL NUMBERS	MAP 34, PAR. 22.02 P/O, T.A.O.T.C.T. MAP 21, PAR. 22.01 P/O, T.A.O.S.C.T.
TOTAL LOT AREA	50.79 AC.+-
SETBACKS	60' (FRONT) / 50' (SIDE) / 50' (REAR)



LOCATION MAP

NOT TO SCALE

INDEX OF DRAWINGS

BWSC

AUGUST 28, 2014
PROJECT No.
35875-00

SEPT. 9, 2014
ISSUE FOR
CONSTRUCTION

NOV. 10, 2014
ARAP REV. 3

CONSTUCTION PLANS
FOR THE
ARC
200 SMITH WAY, HARTSVILLE, TN 37074

BWSC BARGE WAGGONER SUMNER & CANNON, INC.
211 Commerce Street, Suite 600 Nashville, Tennessee 37201
PHONE (615) 254-1500 FAX (615) 255-6572

JAMES E. WISEMAN
REGISTERED ENGINEER
No. 116699
STATE OF TENNESSEE
11-10-14

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11/10/2014
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BwscFullpen Workspace: NONE

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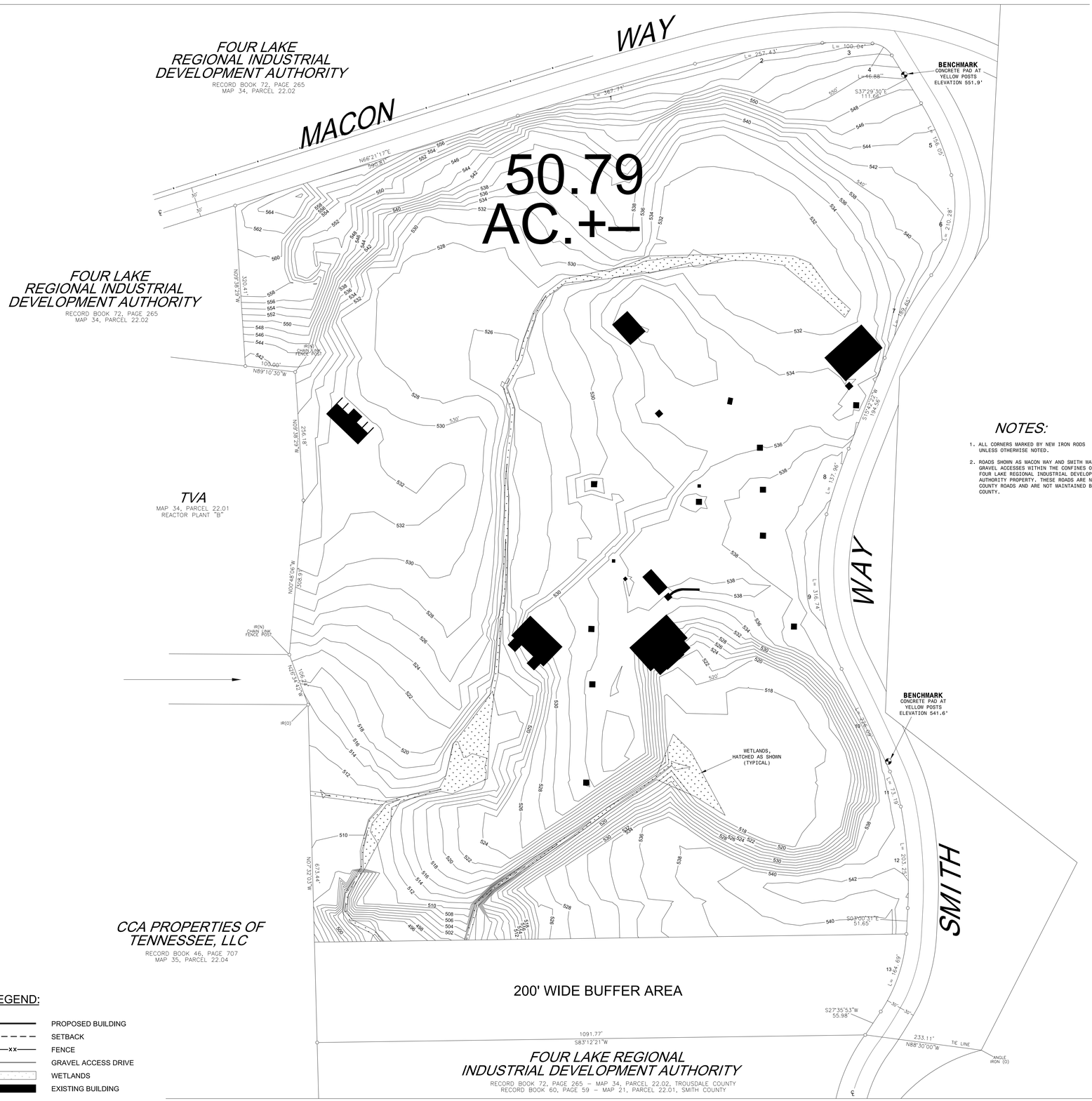

NOTE:
SURVEY PREPARED BY CARROL CARMAN, SURVEYING

NOTES:

1. ALL CORNERS MARKED BY NEW IRON RODS UNLESS OTHERWISE NOTED.
2. ROADS SHOWN AS MACON WAY AND SMITH WAY ARE GRAVEL ACCESSES WITHIN THE CONFINES OF THE FOUR LAKE REGIONAL INDUSTRIAL DEVELOPMENT AUTHORITY PROPERTY. THESE ROADS ARE NOT COUNTY ROADS AND ARE NOT MAINTAINED BY THE COUNTY.

SURVEYOR'S CERTIFICATE:

CARROLL CARMAN, SURVEYING

LEGEND:

- PROPOSED BUILDING
- SETBACK
- FENCE
- GRAVEL ACCESS DRIVE
- WETLANDS
- EXISTING BUILDING

BARGE WAGGONER SUMNER & CANNON, INC.
BWSC
10133 Sherrill Blvd, Suite 200, Knoxville, Tennessee 37932
PHONE (865) 637-2810 FAX (865) 673-8554

EXISTING CONDITIONS

CONSTRUCTION PLANS
ARC
200 SMITH WAY, HARTSVILLE, TN 37074

DR.	CHK.	DATE	DESCRIPTION
WMB	JDS	06-27-14	ISSUED FOR ZONING REVIEW
WMB	JDS	08-01-14	ISSUED FOR PERMITS
WMB	JEW	08-08-14	ISSUED FOR PERMITS
WMB	JEW	09-09-14	ISSUED FOR CONSTRUCTION
WMB	JEW	11-10-14	AR&P REV. 3

C0.31

FILE NO. 35875-00

11/10/2014
10:37:47
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wmbrogley
BwscFull.pen Workspace: civil

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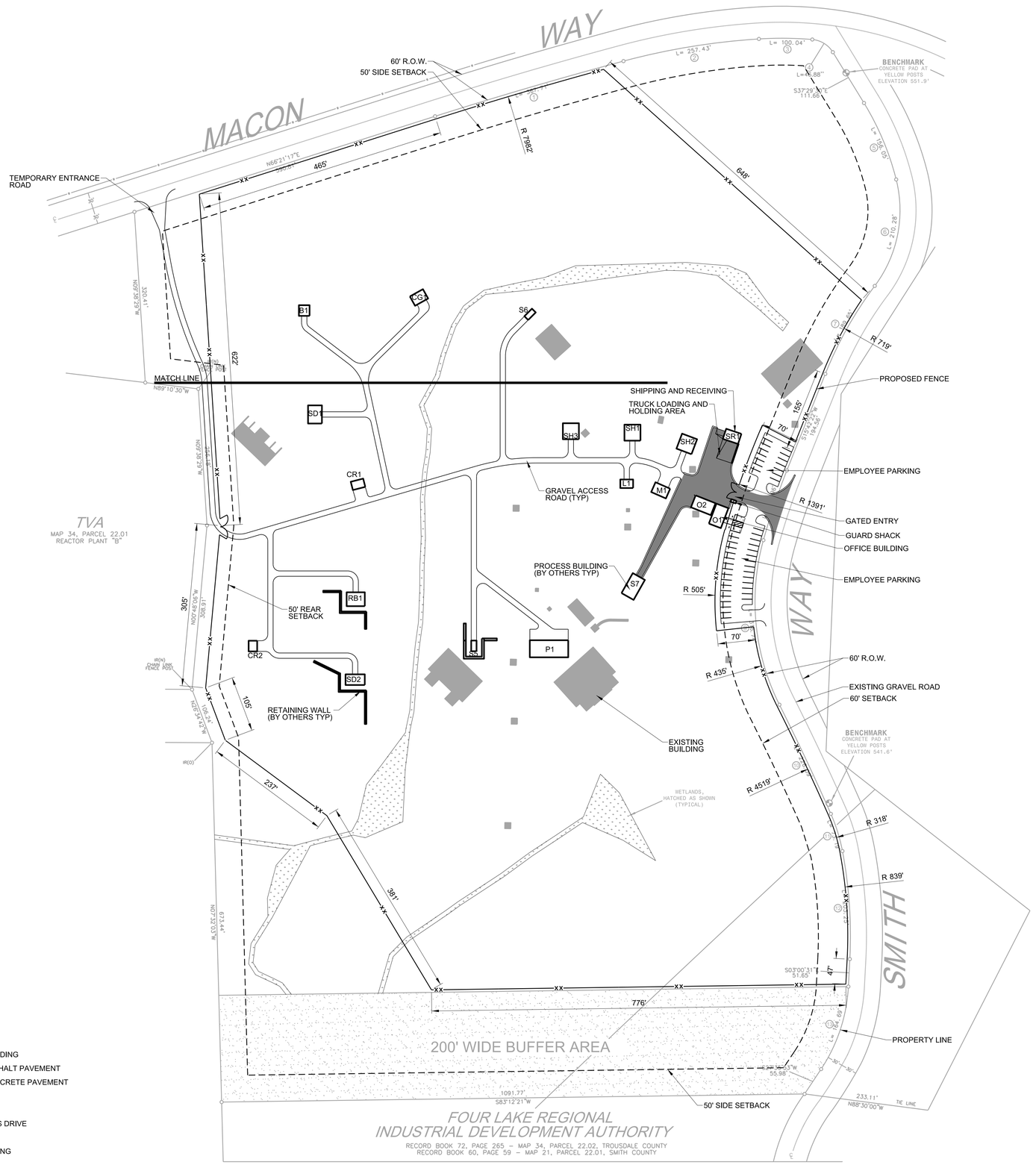

SITE NOTES:

1. THE CONTRACTOR SHALL VERIFY LOCATIONS AND INVERTS OF ALL EXISTING UTILITIES (INCLUDING STORM DRAINAGE PIPES OR STRUCTURES) BEFORE COMMENCEMENT OF CONSTRUCTION.
2. IN EASEMENTS & R.O.W., CONTRACTOR SHALL PROTECT & RESTORE PROPERTY TO A CONDITION SIMILAR OR EQUAL TO THAT EXISTING AT THE COMMENCEMENT OF CONSTRUCTION EXCEPT AS NOTED.
3. SURPLUS MATERIAL NOT REQUIRED FOR SITE CONSTRUCTION SHALL BE DISPOSED OF BY THE CONTRACTOR AT THE CONTRACTOR'S EXPENSE AFTER THE OWNER'S APPROVAL.
4. FILL MATERIAL REQUIRED, IF ANY, SHALL BE IMPORTED AT THE CONTRACTOR'S EXPENSE.
5. THE CONTRACTOR SHALL COMPLY WITH ALL PERTINENT PROVISIONS OF THE "MANUAL OF ACCIDENT PREVENTION IN CONSTRUCTION" ISSUED BY AGC OF AMERICA, INC. & THE "SAFETY & HEALTH REGULATIONS FOR CONSTRUCTION" ISSUED BY THE U.S. DEPT. OF LABOR.
6. THE CONTRACTOR SHALL COORDINATE WORK WITH OTHER WORK IN PROGRESS.
7. BUILDING CONTROL POINTS, GRADE AND OFFSET STAKES ARE TO BE SET BY THE CONTRACTOR.
8. CONTRACTOR SHALL GIVE ALL NECESSARY NOTICES AND OBTAIN ALL PERMITS PRIOR TO CONSTRUCTION.
9. IN THE EVENT OF ANY DISCREPANCIES AND/OR ERRORS FOUND IN THE DRAWINGS, OR IF PROBLEMS ARE ENCOUNTERED DURING CONSTRUCTION, THE CONTRACTOR SHALL BE REQUIRED TO NOTIFY THE ENGINEER BEFORE PROCEEDING WITH THE WORK. IF ENGINEER IS NOT NOTIFIED, THE CONTRACTOR SHALL TAKE RESPONSIBILITY FOR THE COST OF ANY REVISION.
10. ALL DIMENSIONS ARE TO FACE OF CURB/SIDEWALK & EDGE OF PAVEMENT, UNLESS OTHERWISE NOTED.
11. CONTRACTOR TO NOTIFY LOCAL MUNICIPALITIES CONSTRUCTION COMPLIANCE DIVISION THREE DAYS PRIOR TO BEGINNING WORK.
12. CONTRACTOR SHALL BID & PEFORM THE WORK IN ACCORDANCE WITH ALL LOCAL, STATE, AND NATIONAL CODES AND THE REQUIREMENTS OF THE LOCAL UTILITY COMPANIES.
13. PAVED PARKING SPACES SHALL BE STRIPED WITH A 4" PAINTED WHITE LINE.
14. ALL SIGNAGE TO BE IN ACCORDANCE WITH THE MUTCD, CURRENT EDITION.

LEGEND:

- PROPOSED BUILDING
- PROPOSED ASPHALT PAVEMENT
- PROPOSED CONCRETE PAVEMENT
- SETBACK
- FENCE
- GRAVEL ACCESS DRIVE
- WETLANDS
- EXISTING BUILDING

N

100' 50' 0' 100' 200'

SCALE: 1 INCH = 100 FEET

BARGE WAGGONER SUMNER & CANNON, INC.
BWSC
10133 Sherrill Blvd., Suite 200, Knoxville, Tennessee 37932
PHONE (865) 637-2810 FAX (865) 673-8554

JAMES E. WISEMAN
REGISTERED ENGINEER
No. 116699
STATE OF TENNESSEE
11-10-14

OVERALL SITE PLAN

CONSTRUCTION PLANS
ARC
200 SMITH WAY, HARTSVILLE, TN 37074

DR.	CHK.	DATE	DESCRIPTION
WMB	JDS	06-27-14	ISSUED FOR ZONING REVIEW
WMB	JDS	08-01-14	ISSUED FOR PERMITS
WMB	JEW	08-08-14	ISSUED FOR PERMITS
WMB	JEW	09-09-14	ISSUED FOR CONSTRUCTION
WMB	JEW	11-10-14	AR&P REV. 3

C1.01

FILE NO. 35875-00

11/10/2014
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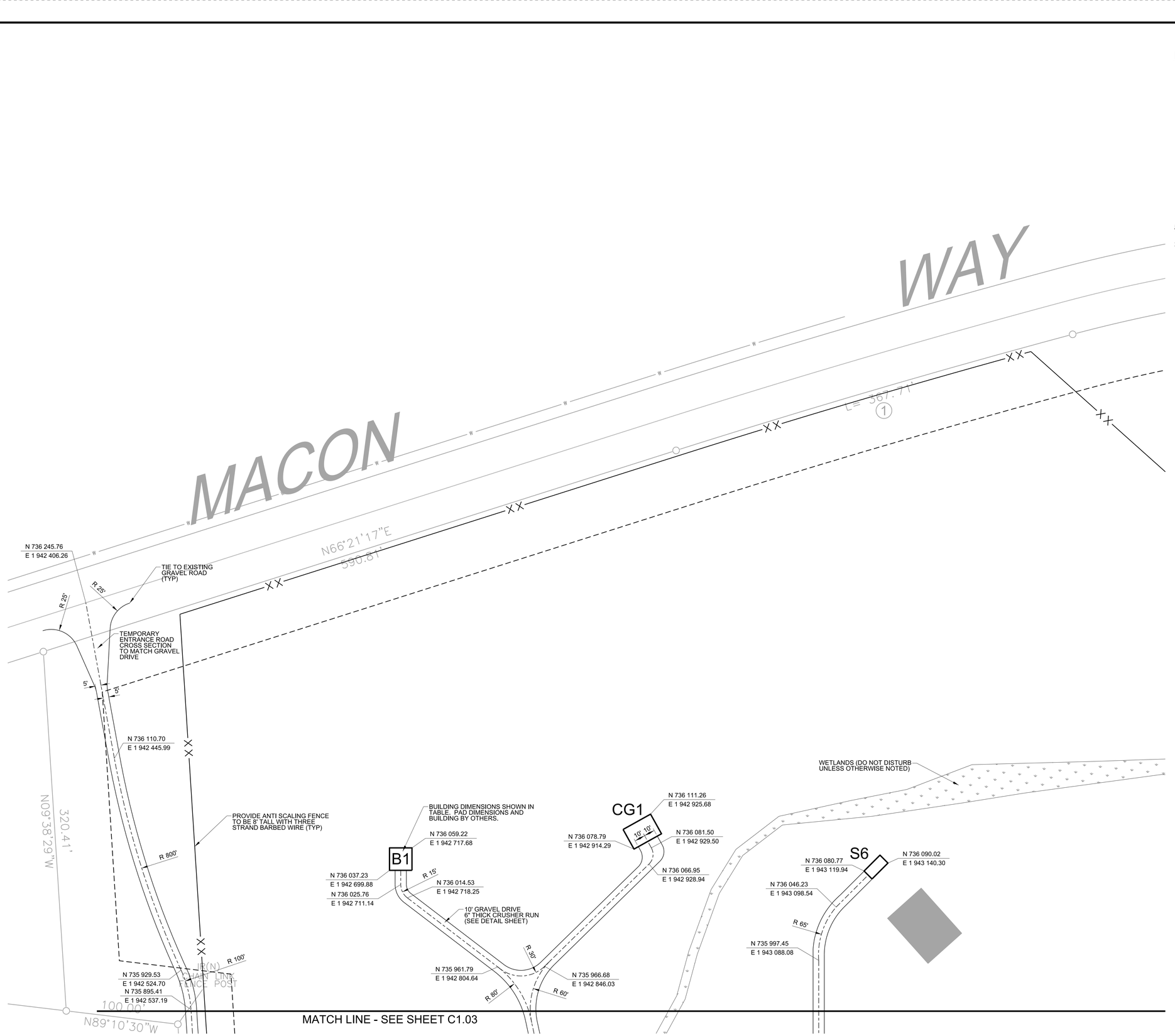

LEGEND:

- PROPOSED BUILDING
- SETBACK
- FENCE
- GRAVEL ACCESS DRIVE
- WETLANDS
- EXISTING BUILDING

PROPOSED BUILDING TABLE		
I.D.	DIMENSIONS	AREA (SF)
S6	10' X 20'	200
CG1	20' X 28'	560
B1	20' X 20'	400

NOTE:
1. ALL PAVEMENT RADII ARE 12' UNLESS OTHERWISE DIMENSIONED
2. ALL ROADWAY WIDTHS ARE 10' UNLESS OTHERWISE DIMENSIONED

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STATE OF TENNESSEE
No. 116699
11-10-14

SITE PLAN

CONSTRUCTION PLANS
ARC
200 SMITH WAY, HARTSVILLE, TN 37074

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WMB	JEW	08-08-14	ISSUED FOR PERMITS
WMB	JEW	09-09-14	ISSUED FOR CONSTRUCTION
WMB	JEW	11-10-14	ARAP REV. 3

C1.02

FILE NO. 35875-00

11/10/2014
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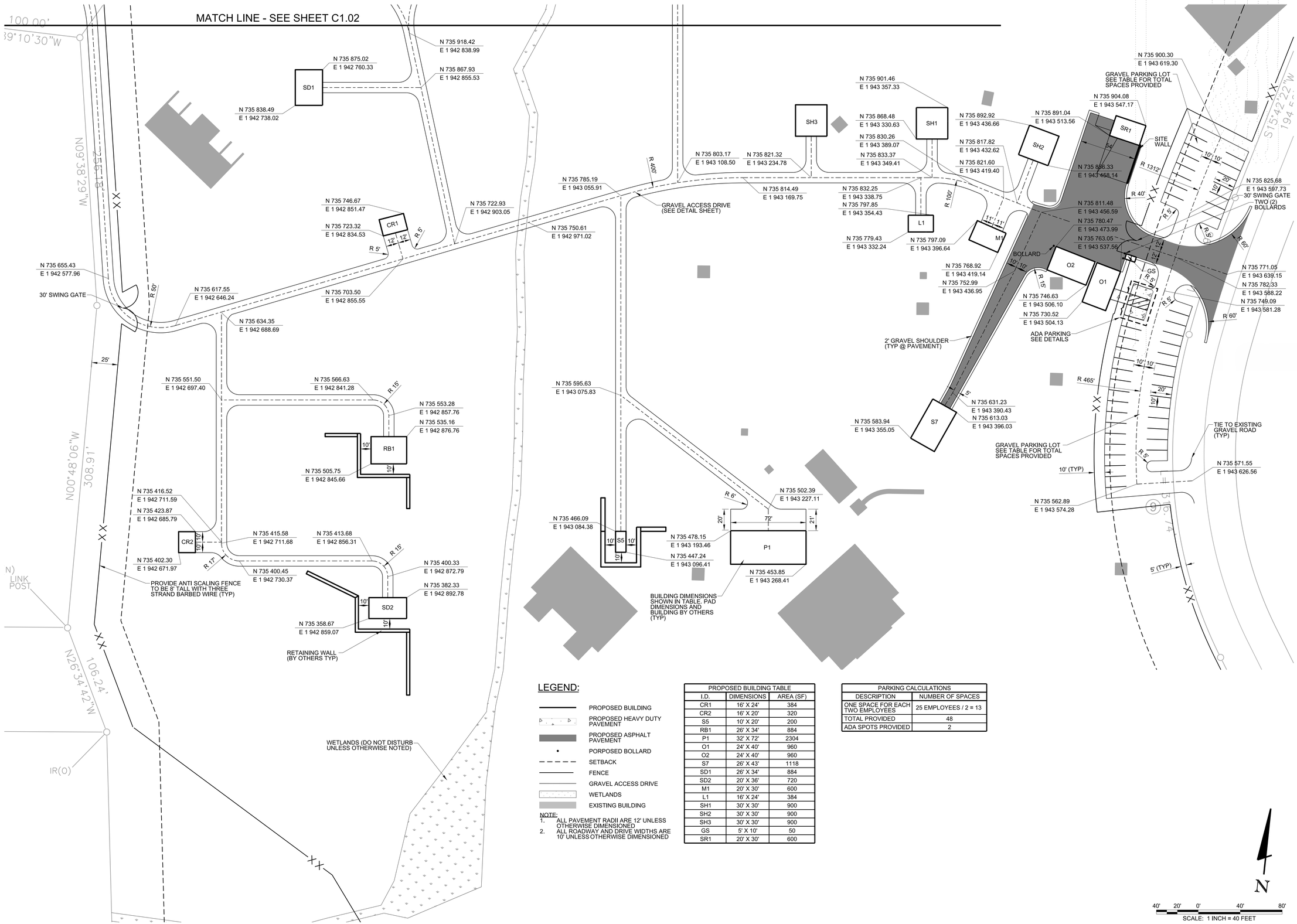

LEGEND:

- PROPOSED BUILDING
- PROPOSED HEAVY DUTY PAVEMENT
- PROPOSED ASPHALT PAVEMENT
- PORPOSED BOLLARD
- SETBACK
- FENCE
- GRAVEL ACCESS DRIVE
- WETLANDS
- EXISTING BUILDING

NOTE:
1. ALL PAVEMENT RADII ARE 12' UNLESS OTHERWISE DIMENSIONED
2. ALL ROADWAY AND DRIVE WIDTHS ARE 10' UNLESS OTHERWISE DIMENSIONED

PROPOSED BUILDING TABLE		
I.D.	DIMENSIONS	AREA (SF)
CR1	16' X 24'	384
CR2	16' X 20'	320
S5	10' X 20'	200
RB1	26' X 34'	884
P1	32' X 72'	2304
O1	24' X 40'	960
O2	24' X 40'	960
S7	26' X 43'	1118
SD1	26' X 34'	884
SD2	20' X 36'	720
M1	20' X 30'	600
L1	16' X 24'	384
SH1	30' X 30'	900
SH2	30' X 30'	900
SH3	30' X 30'	900
GS	5' X 10'	50
SR1	20' X 30'	600

PARKING CALCULATIONS	
DESCRIPTION	NUMBER OF SPACES
ONE SPACE FOR EACH TWO EMPLOYEES	25 EMPLOYEES / 2 = 13
TOTAL PROVIDED	48
ADA SPOTS PROVIDED	2

N

40' 20' 0' 40' 80'
SCALE: 1 INCH = 40 FEET

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JAMES E. WISEMAN
REGISTERED ENGINEER
No. 116699
STATE OF TENNESSEE
11-10-14

SITE PLAN

CONSTRUCTION PLANS
ARC
200 SMITH WAY, HARTSVILLE, TN 37074

DR.	CHK.	DATE	DESCRIPTION
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WMB	JEW	09-09-14	ISSUED FOR CONSTRUCTION
WMB	JEW	11-10-14	ARAP REV. 3

C1.03

FILE NO. 35875-00

11/10/2014
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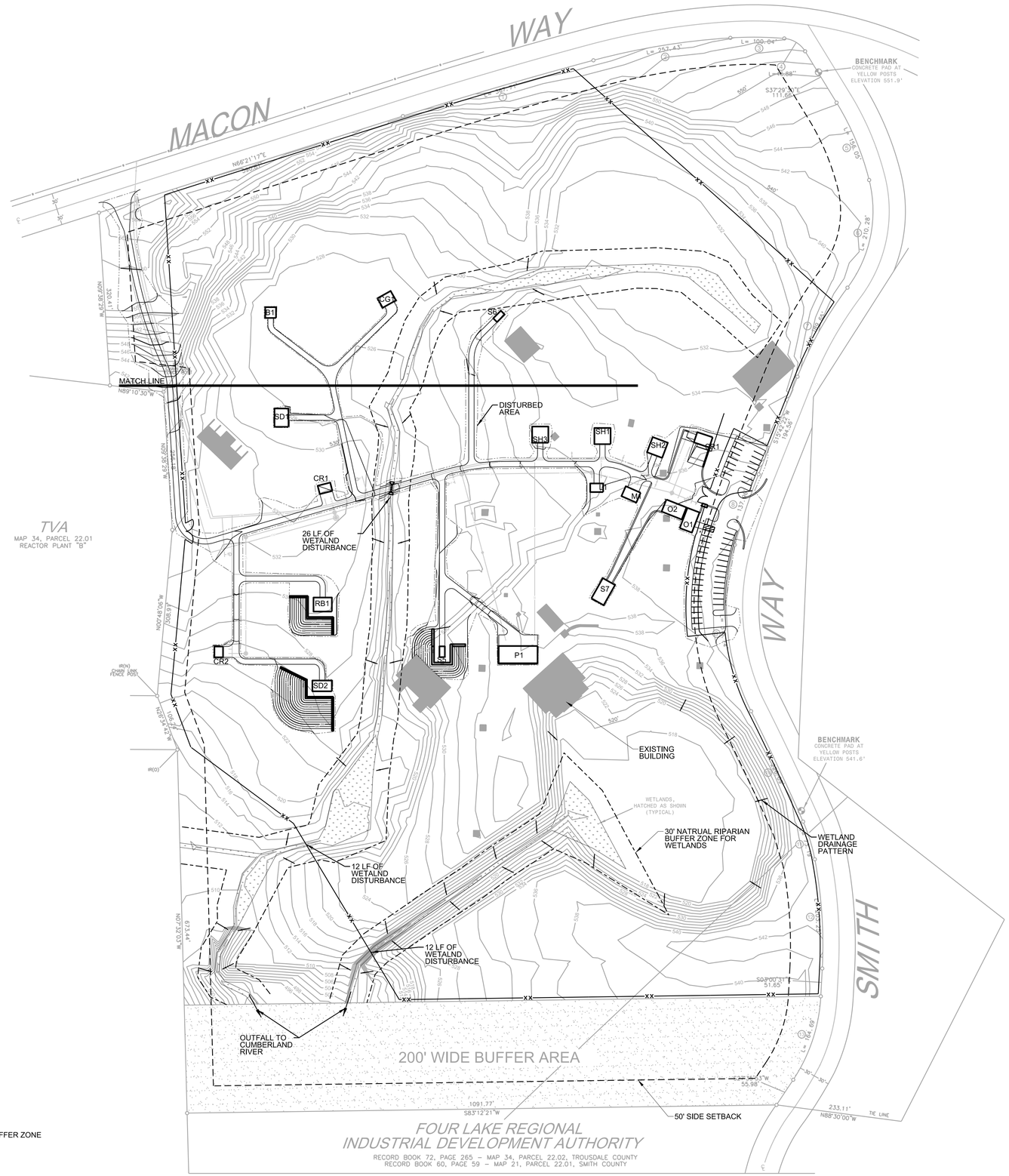

GRADING NOTES:

1. THE CONTRACTOR SHALL VERIFY LOCATIONS AND INVERTS OF ALL EXISTING UTILITIES (INCLUDING STORM DRAINAGE PIPES OR STRUCTURES) BEFORE COMMENCEMENT OF CONSTRUCTION
2. IN RIGHT OF WAY, CONTRACTOR SHALL PROTECT AND RESTORE PROPERTY TO A CONDITION SIMILAR OR EQUAL TO THAT EXISTING AT THE COMMENCEMENT OF CONSTRUCTION EXCEPT AS NOTED.
3. SURPLUS MATERIAL NOT REQUIRED FOR THE SITE CONSTRUCTION SHALL BE DISPOSED OF BY THE CONTRACTOR AT THE CONTRACTOR'S EXPENSE AFTER THE OWNER'S APPROVAL.
4. FILL MATERIAL REQUIRED SHALL MEET THE GEOTECHNICAL SPECIFICATIONS AND SHALL BE BORROWED AT THE CONTRACTOR'S EXPENSE.
5. THE CONTRACTOR SHALL COMPLY WITH ALL PERTINENT PROVISIONS OF THE "MANUAL OF ACCIDENT PREVENTION IN CONSTRUCTION" ISSUED BY AGC OF AMERICA, INC., AND THE "SAFETY AND HEALTH REGULATIONS FOR CONSTRUCTION: ISSUED BY THE U.S. DEPARTMENT OF LABOR.
6. THE CONTRACTOR SHALL COORDINATE WORK WITH OTHER WORK IN PROGRESS.
7. CONTROL POINTS, GRADE AND OFFSET STAKES ARE TO BE SET BY THE CONTRACTOR.
8. THE CONTRACTOR SHALL GIVE ALL NECESSARY NOTICES AND OBTAIN ALL PERMITS PRIOR TO ANY CONSTRUCTION.
9. IN THE EVENT OF ANY DISCREPANCIES AND/OR ERRORS FOUND IN THE DRAWINGS, OR IF PROBLEMS ARE ENCOUNTERED DURING CONSTRUCTION, THE CONTRACTOR SHALL BE REQUIRED TO NOTIFY THE ENGINEER BEFORE PROCEEDING WITH THE WORK. IF THE ENGINEER IS NOT NOTIFIED, THE CONTRACTOR SHALL TAKE RESPONSIBILITY FOR THE COST OF ANY REVISION.
10. TILL SOIL TO A DEPTH OF 4" MINIMUM.
11. ALL GRASS AREAS SHALL HAVE A MINIMUM OF 6" TOPSOIL WHERE ROCK IS ENCOUNTERED.

LEGEND:

- MAJOR CONTOUR
- MINOR CONTOUR
- PROPOSED BUILDING
- SETBACK
- FENCE
- GRAVEL ACCESS DRIVE
- 30' NATURAL RIPARIAN BUFFER ZONE
- WETLANDS
- EXISTING BUILDING

N

100' 50' 0' 100' 200'
SCALE: 1 INCH = 100 FEET

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JAMES E. WISEMAN — REGISTERED ENGINEER — No. 116699 — STATE OF TENNESSEE — 11-10-14

OVERALL GRADING AND DRAINAGE PLAN

CONSTRUCTION PLANS
ARC
200 SMITH WAY, HARTSVILLE, TN 37074

DR.	CHK.	DATE	DESCRIPTION
WMB	JDS	06-27-14	ISSUED FOR ZONING REVIEW
WMB	JDS	08-01-14	ISSUED FOR PERMITS
WMB	JEW	08-08-14	ISSUED FOR PERMITS
WMB	JEW	09-09-14	ISSUED FOR CONSTRUCTION
WMB	JEW	11-10-14	AR&P REV. 3

C2.01

FILE NO. 35875-00

11/10/2014
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wmbrogley
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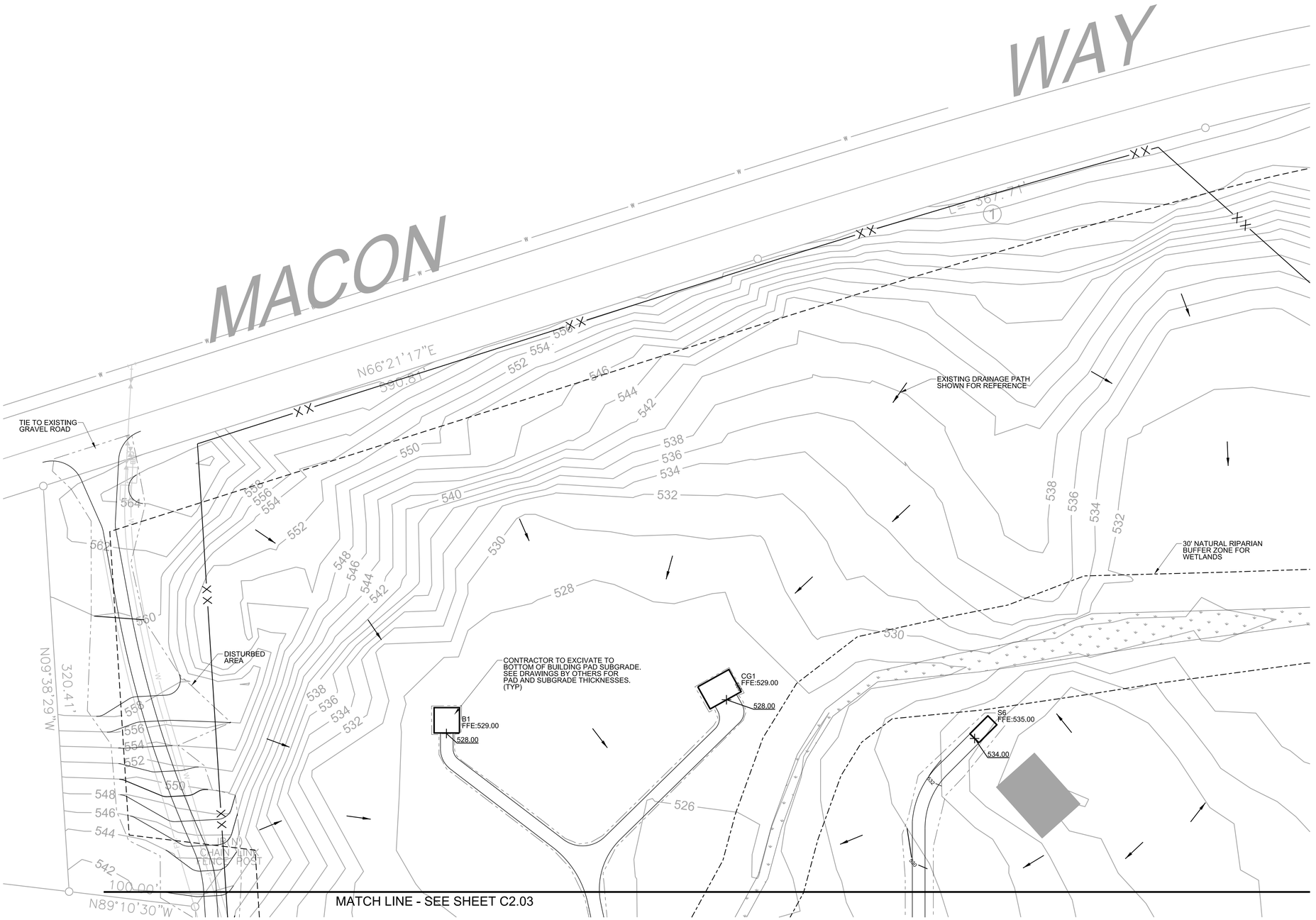
LEGEND:

- MAJOR CONTOUR
- MINOR CONTOUR
- PROPOSED BUILDING
- SETBACK
- FENCE
- GRAVEL ACCESS DRIVE
- 30' NATURAL RIPARIAN BUFFER ZONE
- WETLANDS
- EXISTING BUILDING

NOTE:
1. ALL SLOPES 2:1 MAXIMUM



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JAMES E. WISEMAN
REGISTERED ENGINEER
No. 116699
STATE OF TENNESSEE
11-10-14

GRADING AND DRAINAGE PLAN

CONSTRUCTION PLANS
ARC
200 SMITH WAY, HARTSVILLE, TN 37074

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WMB	JEW	09-09-14	ISSUED FOR CONSTRUCTION
WMB	JEW	11-10-14	ARAP REV. 3

C2.02

FILE NO. 35875-00

11/10/2014
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wmbrogley
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MATCH LINE - SEE SHEET C2.02

SD1
FFE:529.50
528.50

HW 1
IE : 520.21

CR1
FFE:533.00
532.00

15 LF OF 30" RCP
@ 1.22%
HW 2
IE : 520.03

SEWER LIFT
STATION
(BY OTHERS)

SH3
FFE:535.50
534.50

SH1
FFE:535.50
534.50

536.00
L1
FFE:537.00
537.00
M1
FFE:538.00

DRAIN PIPE BY
OTHERS
RAMP @ 6.0%
538.00
TRENCH DRAIN BY
OTHERS
RAMP @ 5.0%
SH2
FFE:537.00
536.00
SR1
FFE:539.00
535.00
536.63

O2
FFE:540.00
O1
FFE:540.00
539.76

MATCH EXISTING
GRAVEL ROAD

2.0% MAX SLOPE IN ALL
DIRECTIONS FOR ADA
PARKING STALLS

S7
FFE:540.00
539.00

CONTRACTOR TO EXCIVATE TO
BOTTOM OF BUILDING PAD SUBGRADE.
SEE DRAWINGS BY OTHERS FOR
PAD AND SUBGRADE THICKNESSES.
(TYP)

MATCH EXISTING
GRAVEL ROAD

EXISTING DRAINAGE PATH
SHOWN FOR REFERENCE

530.60
530.70
RB1
FFE:531.20
530.60
530.50

526.50
CR2
FFE:527.50

DISTURBED
AREA

528.30
528.50
SD2
FFE: 529.00
528.40
528.30

530.20
530.50
530.20
S5
FFE:531.00
530.40

536.50
P1
FFE:537.00
536.50

N)
LINK
POST

IR(O)

30' NATURAL RIPARIAN
BUFFER ZONE FOR
WETLANDS

N00°48'06"W
308.91'

N26°34'42"W
106.74'

N09°38'29"W
256.18'

S15°42'22"W
194.6

LEGEND:

- MAJOR CONTOUR
- MINOR CONTOUR
- PROPOSED BUILDING
- SETBACK
- FENCE
- GRAVEL ACCESS DRIVE
- 30' NATURAL RIPARIAN BUFFER ZONE
- WETLANDS
- EXISTING BUILDING

NOTE:
1. ALL SLOPES 2:1 MAXIMUM
2. CONTRACTOR TO INSTALL 30" RCP WITH INVERTS BELOW EXISTING GRADE AND MATCH EXISTING STREAM SLOPE TO REPLICATE A NATURAL STREAM BED.

N

40' 20' 0' 40' 80'
SCALE: 1 INCH = 40 FEET

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JAMES E. WISEMAN
REGISTERED ENGINEER
No. 116699
STATE OF TENNESSEE
11-10-14

GRADING AND DRAINAGE PLAN

CONSTRUCTION PLANS
ARC
200 SMITH WAY, HARTSVILLE, TN 37074

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WMB	JDS	08-01-14	ISSUED FOR PERMITS
WMB	JEW	08-08-14	ISSUED FOR PERMITS
WMB	JEW	09-09-14	ISSUED FOR CONSTRUCTION
WMB	JEW	11-10-14	ARAP REV. 3

C2.03

FILE NO. 35875-00

11/10/2014
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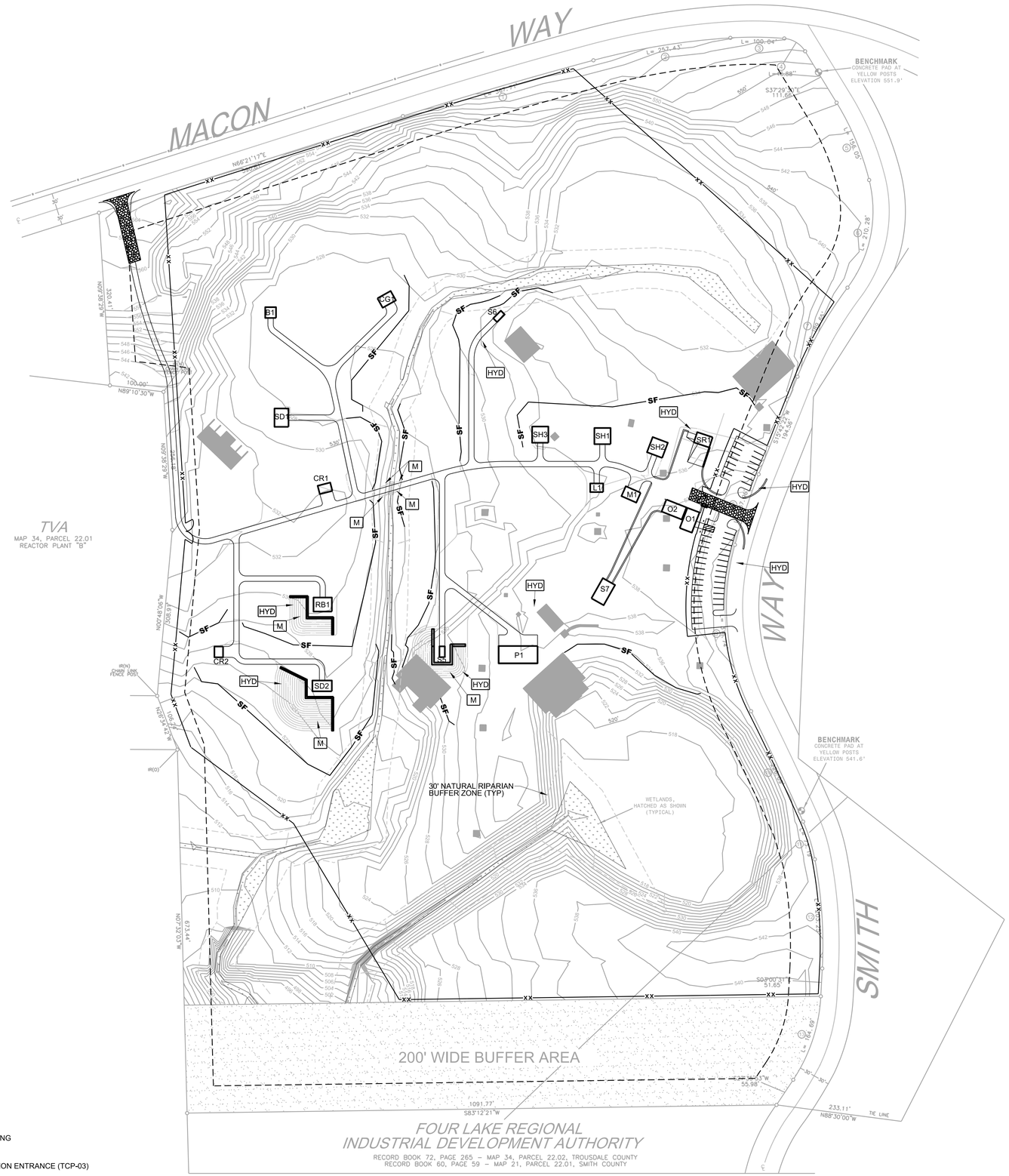

EROSION CONTROL

1. NO VEGETATION IS TO BE DISTURBED EXCEPT AS NECESSARY FOR GRADING PURPOSES.
2. TOPSOIL IS TO BE STRIPPED FROM ALL CUT AND FILL AREAS, STOCKPILED AND REDISTRIBUTED OVER GRADED AREAS TO A MINIMUM OF 6". THE SOIL IS TO BE STOCKPILED IN THE LOCATIONS AS DESIGNATED BY THE OWNER.
3. ALL GRADED AREAS INCLUDING SLOPES ARE TO BE MULCHED AND SEEDED WITHIN 15 DAYS OF FINAL GRADING. ANY AREAS LEFT UNDISTURBED FOR 15 DAYS SHALL HAVE ADEQUATE STABILIZATION.
4. ALL DITCH BOTTOMS AND SLOPES STEEPER THAN 3:1 SHALL HAVE LANDLOK CS2 EROSION CONTROL MATTING APPLIED OVER SEED BED (OR PRE- APPROVED ALTERNATE) WWW.PROPEXINC.COM
5. ALL DIMENSIONS AND LOCATIONS OF TEMPORARY SOIL EROSION AND WATER POLLUTION CONTROL DEVICES SHALL BE SUBJECT TO ADJUSTMENT AS DESIGNATED BY THE ENGINEER.
6. WHEN THE TEMPORARY SOIL EROSION AND WATER POLLUTION CONTROL DEVICES ARE NO LONGER REQUIRED FOR THE INTENDED PURPOSE, IN THE OPINION OF THE ENGINEER, THEY SHALL BE REMOVED.
7. THE CONTRACTOR IS TO NOTIFY CITY ENGINEER THREE DAYS PRIOR TO BEGINNING WORK.
8. FILL SHALL BE PLACED PER THE GEOTECHNICAL REPORT.
9. INSTALL SILT FENCE AROUND ANY STOCK PILES - SEE DETAILS SHEET
10. CONTRACTOR TO PROVIDE AN AREA FOR CONCRETE WASH DOWN AND EQUIPMENT FUELING IN ACCORDANCE WITH TDEC BMP MANUAL.
11. INSPECTIONS OF OUTFALLS/EPSC MUST BE MEASURED AT LEAST TWICE WEEKLY AND AT LEAST 72 HOURS APART.

LEGEND:

- SF — SILT FENCE
- C — STONE FILTER RING
- PROPOSED BUILDING
- SETBACK
- xx — FENCE
- GRAVEL ACCESS DRIVE
- WETLANDS
- EXISTING BUILDING
- M — EROSION CONTROL MATTING
- HYD — HYDROSEEDING
- TEMPORARY CONSTRUCTION ENTRANCE (TCP-03)

BARGE WAGGONER SUMNER & CANNON, INC.
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JAMES E. WISEMAN
REGISTERED ENGINEER
No. 116699
STATE OF TENNESSEE
11-10-14

INITIAL EROSION CONTROL PLAN

CONSTRUCTION PLANS
ARC
200 SMITH WAY, HARTSVILLE, TN 37074

DR.	CHK.	DATE	DESCRIPTION
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WMB	JDS	08-01-14	ISSUED FOR PERMITS
WMB	JEW	08-08-14	ISSUED FOR PERMITS
WMB	JEW	09-09-14	ISSUED FOR CONSTRUCTION
WMB	JEW	11-10-14	ARAP REV. 3

C2.41

FILE NO. 35875-00

11/10/2014
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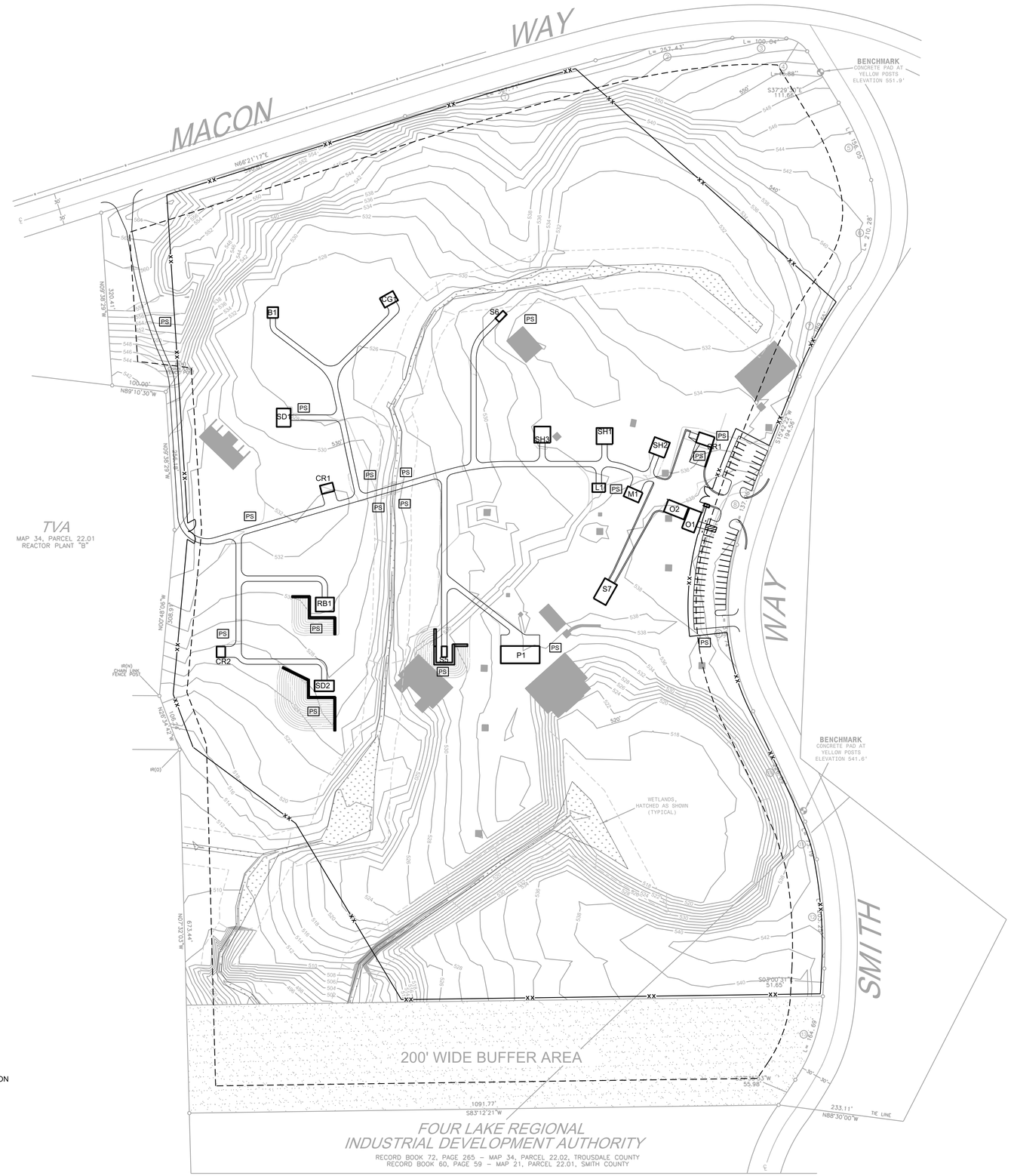

EROSION CONTROL

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2. TOPSOIL IS TO BE STRIPPED FROM ALL CUT AND FILL AREAS, STOCKPILED AND REDISTRIBUTED OVER GRADED AREAS TO A MINIMUM OF 6". THE SOIL IS TO BE STOCKPILED IN THE LOCATIONS AS DESIGNATED BY THE OWNER.
3. ALL GRADED AREAS INCLUDING SLOPES ARE TO BE MULCHED AND SEEDED WITHIN 15 DAYS OF FINAL GRADING. ANY AREAS LEFT UNDISTURBED FOR 15 DAYS SHALL HAVE ADEQUATE STABILIZATION.
4. ALL DITCH BOTTOMS AND SLOPES STEEPER THAN 3:1 SHALL HAVE LANDLOK CS2 EROSION CONTROL MATTING APPLIED OVER SEED BED (OR PRE- APPROVED ALTERNATE) WWW.PROPEXINC.COM
5. ALL DIMENSIONS AND LOCATIONS OF TEMPORARY SOIL EROSION AND WATER POLLUTION CONTROL DEVICES SHALL BE SUBJECT TO ADJUSTMENT AS DESIGNATED BY THE ENGINEER.
6. WHEN THE TEMPORARY SOIL EROSION AND WATER POLLUTION CONTROL DEVICES ARE NO LONGER REQUIRED FOR THE INTENDED PURPOSE, IN THE OPINION OF THE ENGINEER, THEY SHALL BE REMOVED.
7. THE CONTRACTOR IS TO NOTIFY CITY ENGINEER THREE DAYS PRIOR TO BEGINNING WORK.
8. FILL SHALL BE PLACED PER THE GEOTECHNICAL REPORT.
9. INSTALL SILT FENCE AROUND ANY STOCK PILES - SEE DETAILS SHEET
10. CONTRACTOR TO PROVIDE AN AREA FOR CONCRETE WASH DOWN AND EQUIPMENT FUELING IN ACCORDANCE WITH TDEC BMP MANUAL.
11. INSPECTIONS OF OUTFALLS/EPSC MUST BE MEASURED AT LEAST TWICE WEEKLY AND AT LEAST 72 HOURS APART.

LEGEND:

- PS — PERMANENT STABILIZATION
- PROPOSED BUILDING
- SETBACK
- FENCE
- GRAVEL ACCESS DRIVE
- WETLANDS
- EXISTING BUILDING

N

100' 50' 0' 100' 200'
SCALE: 1 INCH = 100 FEET

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JAMES E. WISEMAN — REGISTERED ENGINEER — 116699 — STATE OF TENNESSEE — 11-10-14

FINAL EROSION CONTROL PLAN

CONSTRUCTION PLANS
ARC
200 SMITH WAY, HARTSVILLE, TN 37074

DR.	CHK.	DATE	DESCRIPTION
WMB	JDS	06-27-14	ISSUED FOR ZONING REVIEW
WMB	JDS	08-01-14	ISSUED FOR PERMITS
WMB	JEW	08-08-14	ISSUED FOR PERMITS
WMB	JEW	09-09-14	ISSUED FOR CONSTRUCTION
WMB	JEW	11-10-14	AR&P REV. 3

C2.43

FILE NO. 35875-00

11/10/2014
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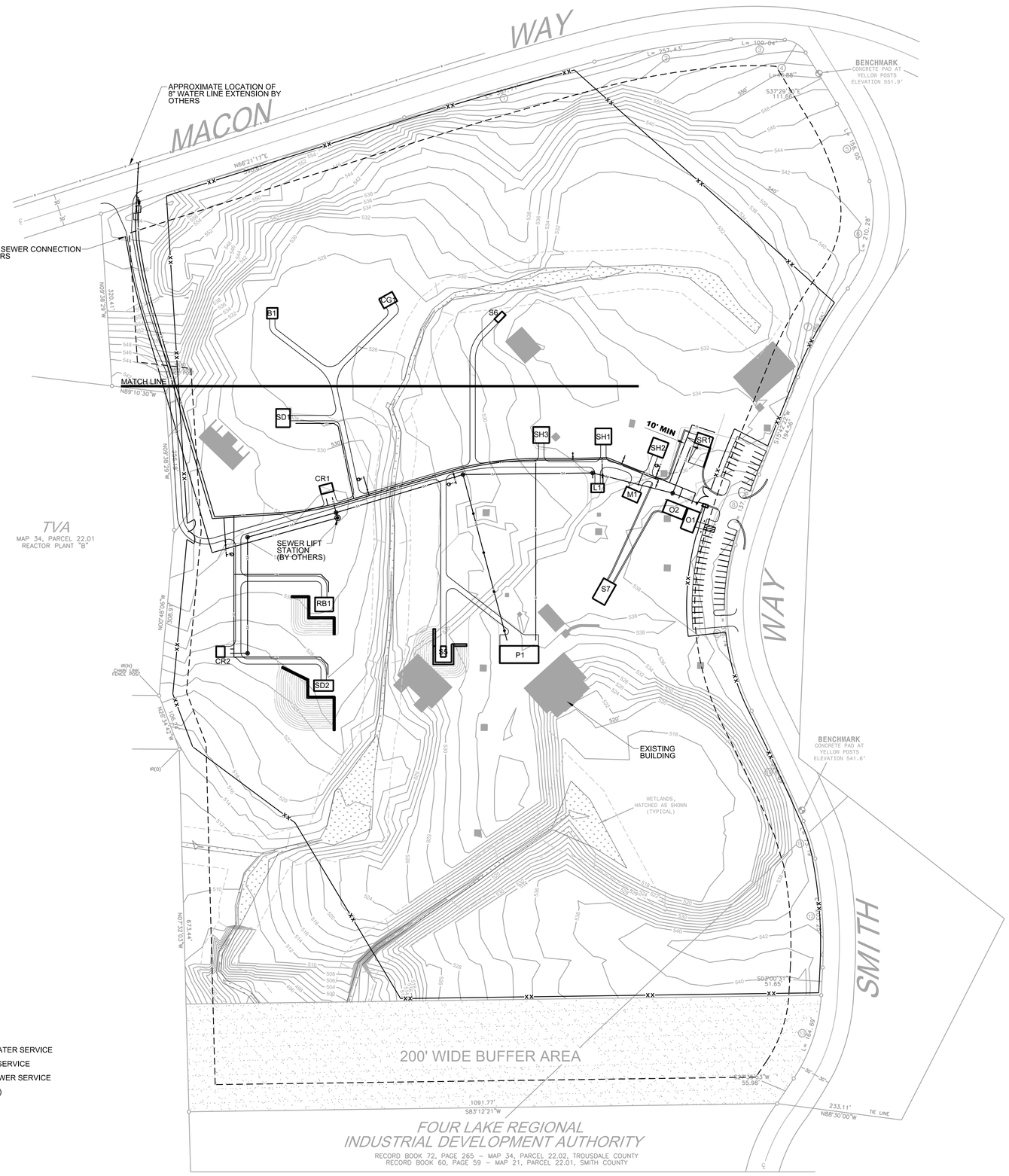

UTILITY NOTES:

1. ALL WATER AND SEWER CONSTRUCTION SHALL BE IN ACCORDANCE WITH SPECIFICATIONS OF LOCAL UTILITY COMPANY PROVIDER.
2. THE CONTRACTOR SHALL VERIFY THE LOCATIONS AND INVERTS OF ALL EXISTING UTILITY LINES AND STRUCTURES (INCLUDING STORM DRAINAGE PIPES OR STRUCTURES) BEFORE THE COMMENCEMENT OF CONSTRUCTION.
3. ALL PUBLIC AND PRIVATE WATER MAINS SHALL COMPLY WITH NFPA 13 AND 24 UNLESS LOCAL JURISDICTION STATES OTHERWISE.
4. CONTRACTOR SHALL GIVE ALL NECESSARY NOTICES, OBTAIN ALL PERMITS, AND PAY ANY APPLICABLE FEES.
5. IN THE EVENT OF ANY DISCREPANCIES AND/OR ERRORS FOUND IN THE DRAWINGS, OR IF PROBLEMS ARE ENCOUNTERED DURING CONSTRUCTION, THE CONTRACTOR SHALL BE REQUIRED TO NOTIFY THE ENGINEER BEFORE PROCEEDING WITH THE WORK. IF ENGINEER IS NOT NOTIFIED, THE CONTRACTOR SHALL TAKE RESPONSIBILITY FOR THE COST OF ANY REVISION.
6. THE CONTRACTOR IS TO VERIFY THE EXACT LOCATION OF ALL EXISTING UTILITIES, TAKE CARE TO PROTECT UTILITIES THAT ARE TO REMAIN, REPAIR ANY DAMAGE, ACCORDING TO LOCAL STANDARDS AND AT THE CONTRACTORS EXPENSE, AND COORDINATE ALL CONSTRUCTION WITH THE APPROPRIATE UTILITY COMPANY.
7. CONTRACTOR SHALL EXERCISE EXTREME CAUTION IN THE USE OF EQUIPMENT IN AND AROUND OVERHEAD AND UNDERGROUND ELECTRICAL WIRES AND SERVICES. IF AT ANY TIME IN THE PURSUIT OF THIS WORK THE CONTRACTOR MUST WORK IN THE CLOSE PROXIMITY OF THE ABOVE NOTED WIRES, THE ELECTRIC COMPANY SHALL BE CONTACTED PRIOR TO SUCH WORK AND THE PROPER SAFETY MEASURES TAKEN. A THOROUGH EXAMINATION OF THE OVERHEAD AND UNDERGROUND WIRES IN THE PROJECT AREA SHOULD BE MADE BY THE CONTRACTOR PRIOR TO THE INITIATION OF CONSTRUCTION.
8. THE OWNER AND ENGINEER DO NOT ASSUME RESPONSIBILITY FOR THE POSSIBILITY THAT, DURING CONSTRUCTION, UTILITIES OTHER THAN THOSE SHOWN MAY BE ENCOUNTERED OR THAT ACTUAL LOCATIONS OF THOSE SHOWN MAY BE DIFFERENT FROM LOCATIONS DESIGNATED ON THE CONTRACT DRAWINGS. IN AREAS WHERE IT IS NECESSARY THAT EXACT LOCATIONS BE KNOWN OF UNDERGROUND UTILITIES, THE CONTRACTOR SHALL, AT HIS OWN EXPENSE, FURNISH ALL LABOR AND TOOLS NECESSARY TO EITHER VERIFY AND SUBSTANTIATE OR DEFINITELY ESTABLISH THE POSITION OF UNDERGROUND UTILITY LINES.
9. MAINTAIN A MINIMUM OF 18" VERTICAL CLEARANCE BETWEEN ALL SANITARY SEWER AND WATERLINE CROSSINGS, UNLESS LOCAL UTILITY JURISDICTION SPECS. STATES OTHERWISE.
10. OVERHEAD ELECTRICAL LAYOUT IS SCHEMATIC ONLY. ELECTRIC TO BE DESIGNED BY OTHERS.

LEGEND:

- PROPOSED BUILDING
- PROPOSED DOMESTIC WATER SERVICE
- PROPOSED FIRE WATER SERVICE
- PROPOSED SANIATRY SEWER SERVICE
- FORCE MAIN (BY OTHERS)
- SETBACK
- FENCE
- GRAVEL ACCESS DRIVE
- WETLANDS
- EXISTING BUILDING

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BWSC
10133 Sherrill Blvd., Suite 200, Knoxville, Tennessee 37932
PHONE (865) 637-2810 FAX (865) 673-8554

JAMES E. WISEMAN — REGISTERED ENGINEER — 115699 — STATE OF TENNESSEE — 11-10-14

OVERALL UTILITY PLAN

CONSTRUCTION PLANS
ARC
200 SMITH WAY, HARTSVILLE, TN 37074

DR.	CHK.	DATE	DESCRIPTION
WMB	JDS	06-27-14	ISSUED FOR ZONING REVIEW
WMB	JDS	08-01-14	ISSUED FOR PERMITS
WMB	JEW	08-08-14	ISSUED FOR PERMITS
WMB	JEW	09-09-14	ISSUED FOR CONSTRUCTION
WMB	JEW	11-10-14	ADAP REV. 3

C3.01

FILE NO. 35875-00

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wmbrogley
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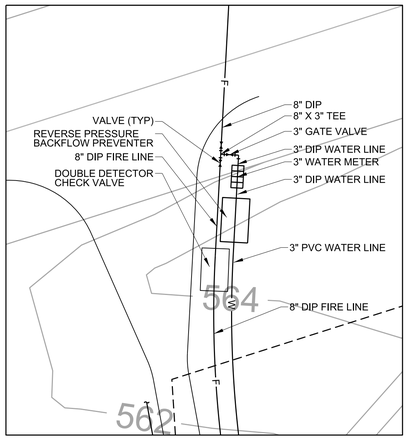

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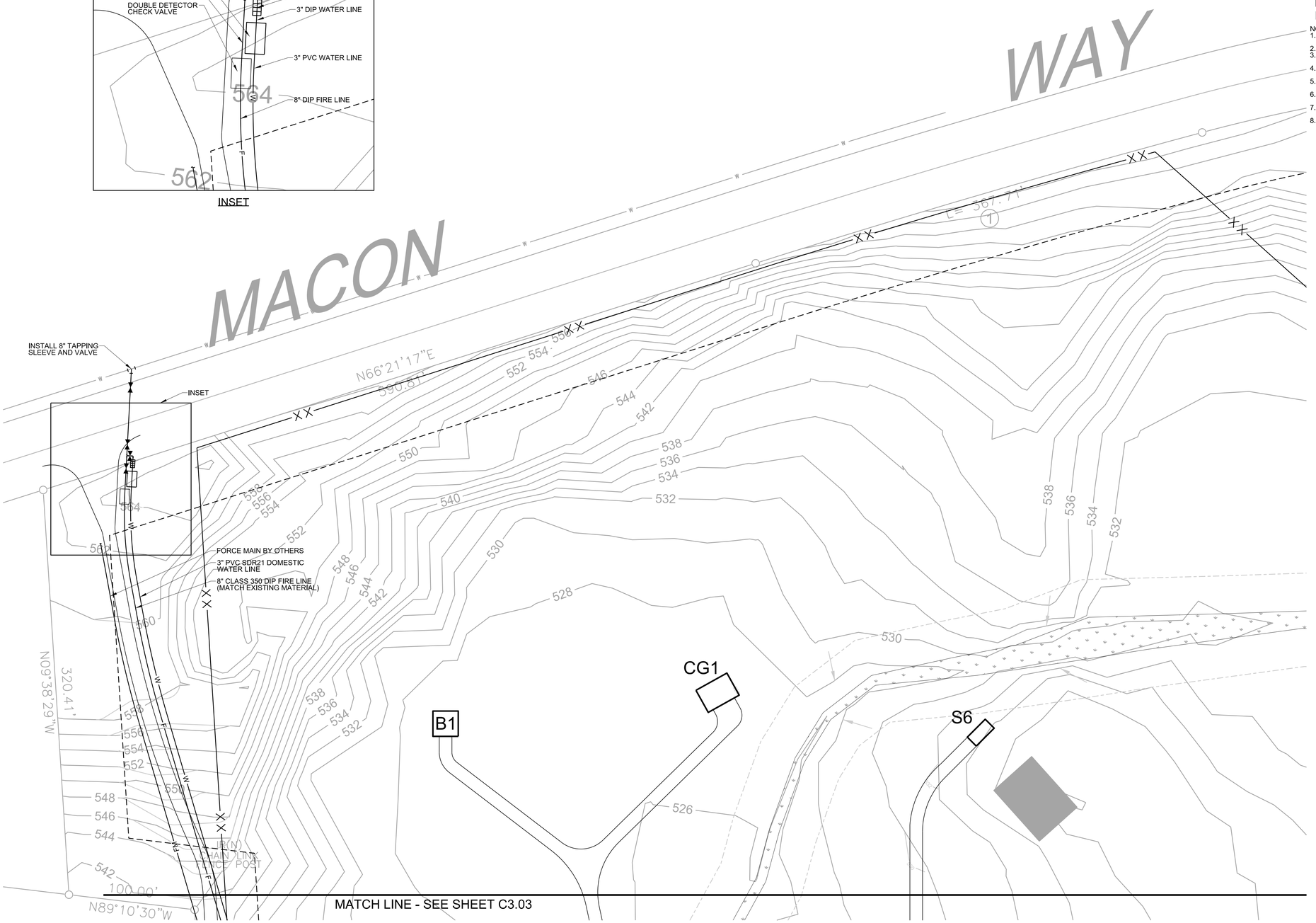

LEGEND:

- PROPOSED BUILDING
- W — PROPOSED DOMESTIC WATER SERVICE
- F — PROPOSED FIRE WATER SERVICE
- SA — PROPOSED SANITARY SEWER SERVICE
- FM — PROPOSED FORCE MAIN BY OTHERS
- PROPOSED SANITARY MANHOLE
- PROPOSED FIRE HYDRANT
- PROPOSED VALVE
- PROPOSED CLEANOUT
- SETBACK
- xx FENCE
- GRAVEL ACCESS DRIVE
- WETLANDS
- EXISTING BUILDING

NOTES:
1. ALL DOMESTIC WATER LINES SHALL BE 1" PVC UNLESS OTHERWISE NOTED
2. DOMESTIC WATER LINES SHALL BE SDR 21 PVC
3. WATER AND SEWER LINES SHALL HAVE A MINIMUM DEPTH OF 3'
4. SANITARY SEWER LINES SHALL BE SCHEDULE #40 4" PVC UNLESS OTHERWISE NOTED
5. SANITARY SEWER MAINS SHALL BE 6" SDR35 PVC AND HAVE A MINIMUM SLOPE OF 1.0%
6. CLEANOUTS TO HAVE MAXIMUM SPACING OF 70 LF
7. ALL FIRE WATER LINES ARE TO BE CLASS 350 DUCTILE IRON PIPE
8. ALL VALVES SHALL INCLUDE VALVE BOX AND BLOCKING. ALL BENDS SHALL INCLUDE THRUST BLOCKING OR OTHER MEANS OF RESTRAINT.

N

40' 20' 0' 40' 80'
SCALE: 1 INCH = 40 FEET

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JAMES E. WISEMAN — REGISTERED ENGINEER — CIVIL — 116699 — STATE OF TENNESSEE — 11-10-14

UTILITY PLAN

CONSTRUCTION PLANS
ARC
200 SMITH WAY, HARTSVILLE, TN 37074

DR.	CHK.	DATE	DESCRIPTION
WMB	JDS	06-27-14	ISSUED FOR ZONING REVIEW
WMB	JDS	08-01-14	ISSUED FOR PERMITS
WMB	JEW	08-08-14	ISSUED FOR PERMITS
WMB	JEW	09-09-14	ISSUED FOR CONSTRUCTION
WMB	JEW	11-10-14	ARAP REV. 3

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FILE NO. 35875-00

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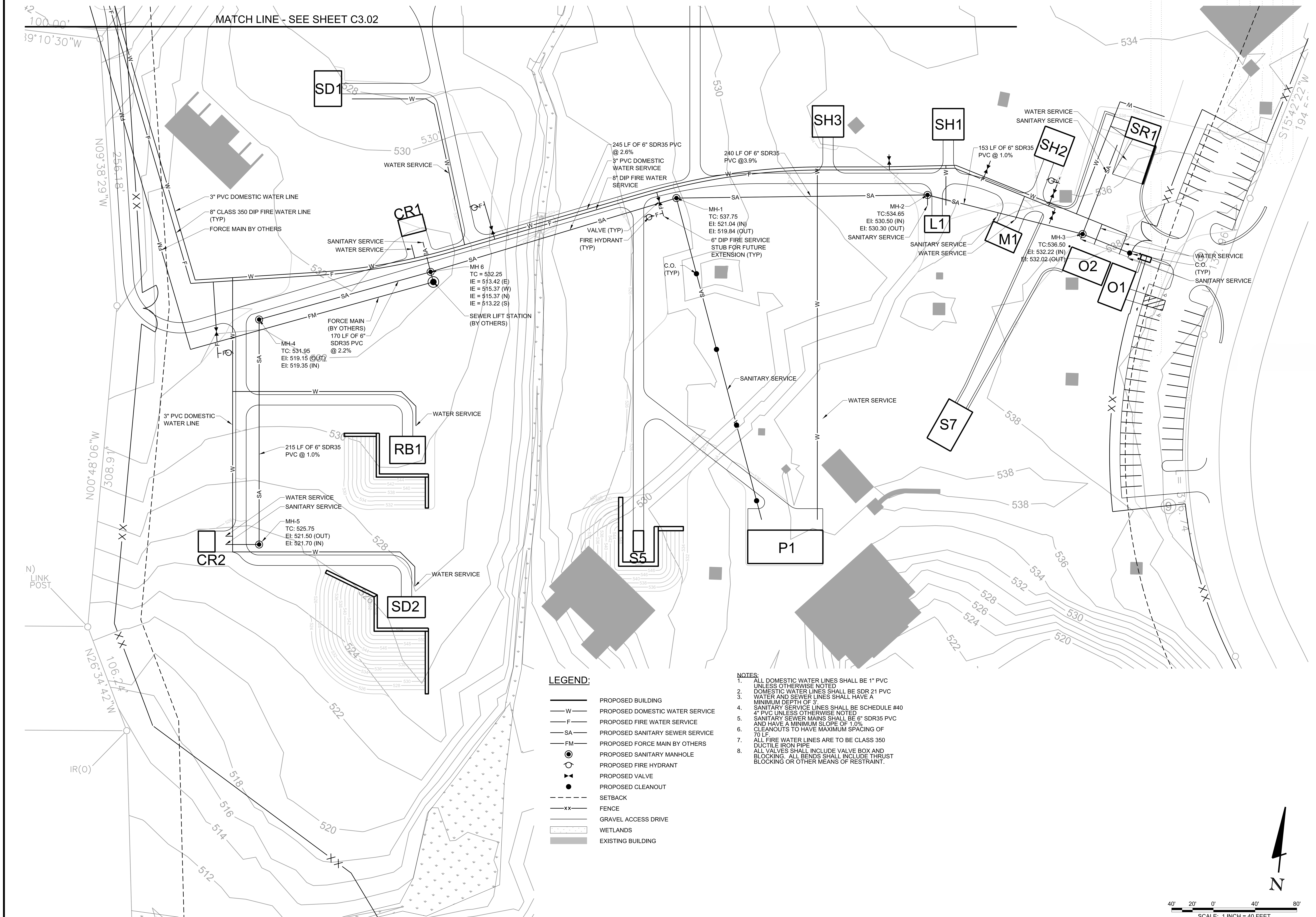

LEGEND:

▬▬	PROPOSED BUILDING
—W—	PROPOSED DOMESTIC WATER SERVICE
—F—	PROPOSED FIRE WATER SERVICE
—SA—	PROPOSED SANITARY SEWER SERVICE
—FM—	PROPOSED FORCE MAIN BY OTHERS
◉	PROPOSED SANITARY MANHOLE
	PROPOSED FIRE HYDRANT
	PROPOSED VALVE
●	PROPOSED CLEANOUT
— — —	SETBACK
—xx—	FENCE
——	GRAVEL ACCESS DRIVE
	WETLANDS
	EXISTING BUILDING

NOTES:

1. ALL DOMESTIC WATER LINES SHALL BE 1" PVC UNLESS OTHERWISE NOTED
2. DOMESTIC WATER LINES SHALL BE SDR 21 PVC
3. WATER AND SEWER LINES SHALL HAVE A MINIMUM DEPTH OF 3'.
4. SANITARY SERVICE LINES SHALL BE SCHEDULE #40 4" PVC UNLESS OTHERWISE NOTED
5. SANITARY SEWER MAINS SHALL BE 6" SDR35 PVC AND HAVE A MINIMUM SLOPE OF 1.0%
6. CLEANOUTS TO HAVE MAXIMUM SPACING OF 70 LF.
7. ALL FIRE WATER LINES ARE TO BE CLASS 350 DUCTILE IRON PIPE
8. ALL VALVES SHALL INCLUDE VALVE BOX AND BLOCKING. ALL BENDS SHALL INCLUDE THRUST BLOCKING OR OTHER MEANS OF RESTRAINT.

N

40' 20' 0' 40' 80'
SCALE: 1 INCH = 40 FEET

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JAMES E. WISEMAN REGISTERED ENGINEER AGRICULTURE COMMERCE No. 116699 STATE OF TENNESSEE 11-10-14

UTILITY PLAN

CONSTRUCTION PLANS
ARC

200 SMITH WAY, HARTSVILLE, TN 37074

DR.	CHK.	DATE	DESCRIPTION
WMB	JDS	06-27-14	ISSUED FOR ZONING REVIEW
WMB	JDS	08-01-14	ISSUED FOR PERMITS
WMB	JEW	08-08-14	ISSUED FOR PERMITS
WMB	JEW	09-09-14	ISSUED FOR CONSTRUCTION
WMB	JEW	11-10-14	ARAP REV. 3

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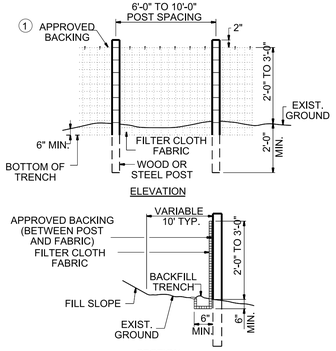
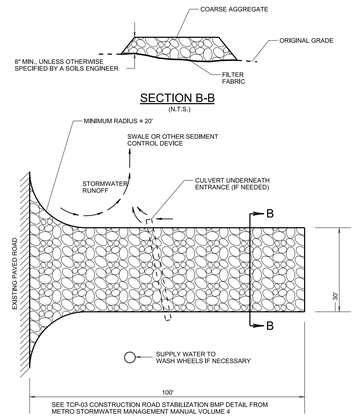
1. FILTER CLOTH SHALL HAVE APPROVED BACKING OR A BUILT-IN REINFORCED STRUCTURE, AS RECOMMENDED BY THE MANUFACTURER TO SUPPORT THE FILTER CLOTH.
2. A PREASSEMBLED SILT FENCE MEETING THE REQUIREMENTS OF THIS DRAWING IS ACCEPTABLE IN LIEU OF A FIELD CONSTRUCTED SILT FENCE.



TEMPORARY SILT FENCING

NTS



TEMPORARY CONSTRUCTION EXIT (TCP-03)

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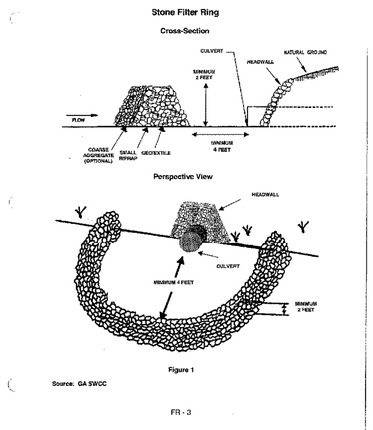

Figure 1

Source: GA SWCC

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STONE FILTER RING

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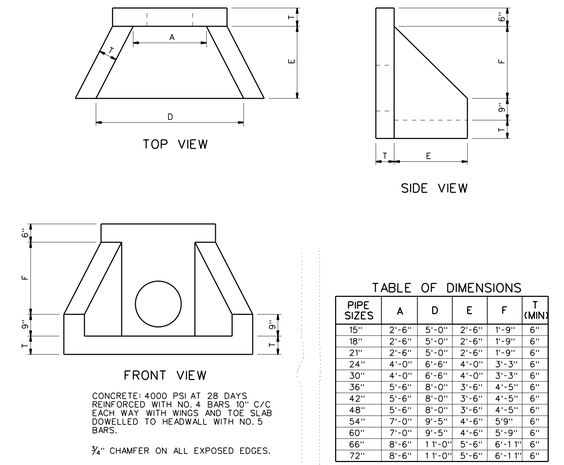


CONCRETE: 4000 PSI AT 28 DAYS. REINFORCED WITH NO. 4 BARS 10" C/C EACH WAY WITH WINGS AND TOE SLAB DOWELLED TO HEADWALL WITH NO. 5 BARS.

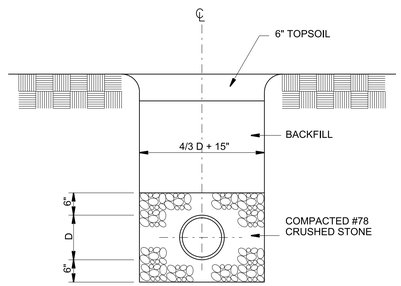
¾" CHAMFER ON ALL EXPOSED EDGES.

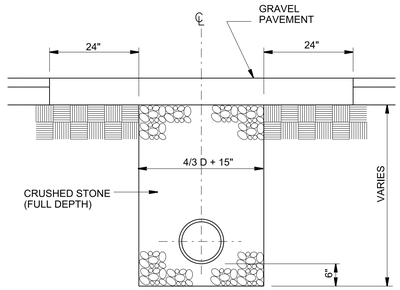
TABLE OF DIMENSIONS

PIPE SIZES	A	D	E	F	T (MIN.)
15"	2'-6"	5'-0"	2'-6"	1'-9"	6"
18"	2'-6"	5'-0"	2'-6"	1'-9"	6"
21"	2'-6"	5'-0"	2'-6"	1'-9"	6"
24"	4'-0"	6'-6"	4'-0"	3'-3"	6"
30"	4'-0"	6'-6"	4'-0"	3'-3"	6"
36"	5'-6"	8'-0"	3'-6"	4'-5"	6"
42"	5'-6"	8'-0"	3'-6"	4'-5"	6"
48"	5'-6"	8'-0"	3'-6"	4'-5"	6"
54"	7'-0"	9'-5"	4'-6"	5'9"	6"
60"	7'-0"	9'-5"	4'-6"	5'-9"	6"
66"	8'-6"	11'-0"	5'-6"	6'-11"	6"
72"	8'-6"	11'-0"	5'-6"	6'-11"	6"

CONCRETE HEADWALL

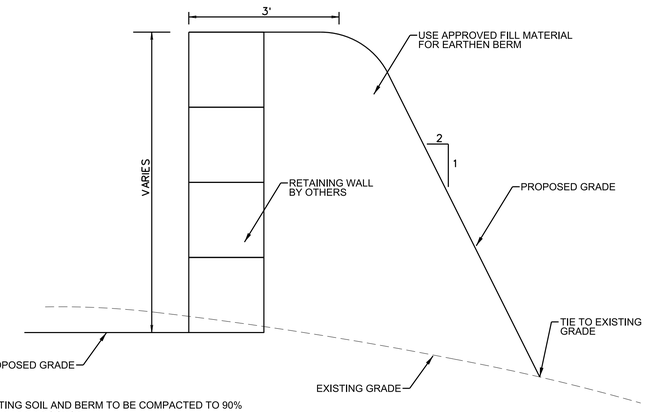
NTS





TYPICAL UTILITY TRENCH DETAILS

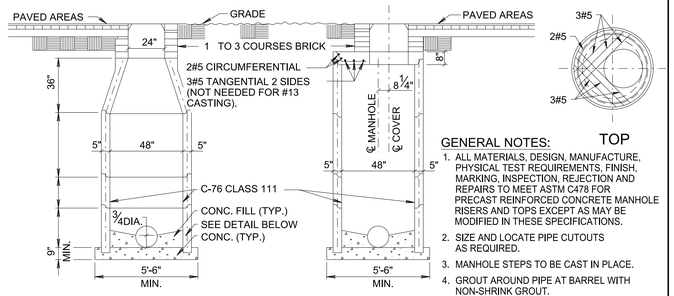
(N.T.S.)



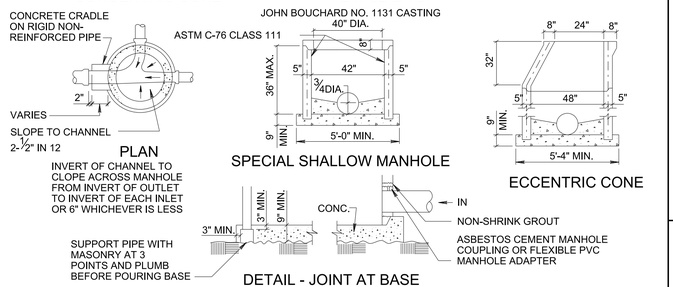
NOTES:
1. EXISTING SOIL AND BERM TO BE COMPACTED TO 90% STANDARD PROCTOR
2. BARRICADE TO BE CONSTRUCTED IN ACCORDANCE WITH "DOD CONTRACTOR'S SAFETY MANUAL FOR AMMUNITION AND EXPLOSIVES"
3. DESIGN OF BERM AND RETAINING WALL TO BE SEALED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF TENNESSEE. (BY OTHERS)

BARRICADE DETAIL

N.T.S.

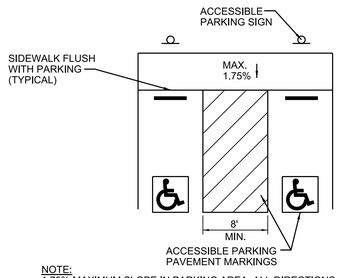


GENERAL NOTES:
1. ALL MATERIALS, DESIGN, MANUFACTURE, PHYSICAL TEST REQUIREMENTS, FINISH, MARKING, INSPECTION, REJECTION AND REPAIRS TO MEET ASTM C478 FOR PRECAST REINFORCED CONCRETE MANHOLE RISERS AND TOPS EXCEPT AS MAY BE MODIFIED IN THESE SPECIFICATIONS.
2. SIZE AND LOCATE PIPE CUTOUTS AS REQUIRED.
3. MANHOLE STEPS TO BE CAST IN PLACE.
4. GROUT AROUND PIPE AT BARREL WITH NON-SHRINK GROUT.



STANDARD PERCAST CONCRETE MANHOLES

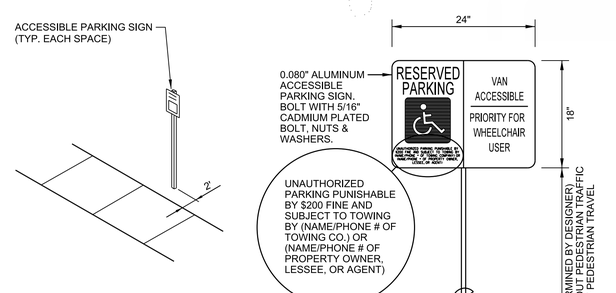
(N.T.S.)



NOTE:
1.75% MAXIMUM SLOPE IN PARKING AREA, ALL DIRECTIONS

ACCESSIBLE PARKING DETAIL

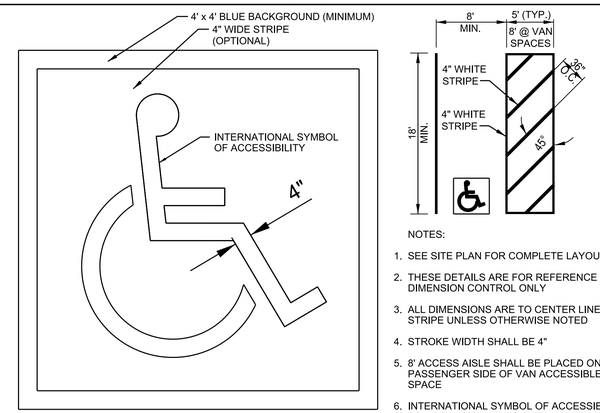
(N.T.S.)



NOTES:
1. ACCESSIBLE PARKING SIGN SHALL CONFORM TO CURRENT TENNESSEE CODE ANNOTATED 55-21-105 AND 55-21-108
2. REFERENCE: M.U.T.C.D.

ACCESSIBLE PARKING SIGNS

(N.T.S.)



NOTES:
1. SEE SITE PLAN FOR COMPLETE LAYOUT
2. THESE DETAILS ARE FOR REFERENCE AND DIMENSION CONTROL ONLY
3. ALL DIMENSIONS ARE TO CENTER LINE OF STRIPE UNLESS OTHERWISE NOTED
4. STROKE WIDTH SHALL BE 4"
5. 8' ACCESS AISLE SHALL BE PLACED ON PASSENGER SIDE OF VAN ACCESSIBLE SPACE
6. INTERNATIONAL SYMBOL OF ACCESSIBILITY TO BE PAINTED WHITE WITH A BLUE BACKGROUND AND OPTIONAL WHITE BORDER

ACCESSIBLE PARKING PAVEMENT MARKINGS

(N.T.S.)

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BWSC
10133 Sherrill Blvd., Suite 200, Knoxville, Tennessee 37932
PHONE (865) 637-2810 FAX (865) 673-8554

JAMES E. WISEMAN — REGISTERED ENGINEER — PRINCIPAL — 11-10-14 — NO. 116699 — STATE OF TENNESSEE

SITE DETAILS

CONSTRUCTION PLANS
ARC
200 SMITH WAY, HARTSVILLE, TN 37074

DR.	CHK.	DATE	DESCRIPTION
WMB	JDS	06-27-14	ISSUED FOR ZONING REVIEW
WMB	JDS	08-01-14	ISSUED FOR PERMITS
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WMB	JEW	09-09-14	ISSUED FOR CONSTRUCTION
WMB	JEW	11-10-14	ARAP REV. 3

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FILE NO. 35875-00

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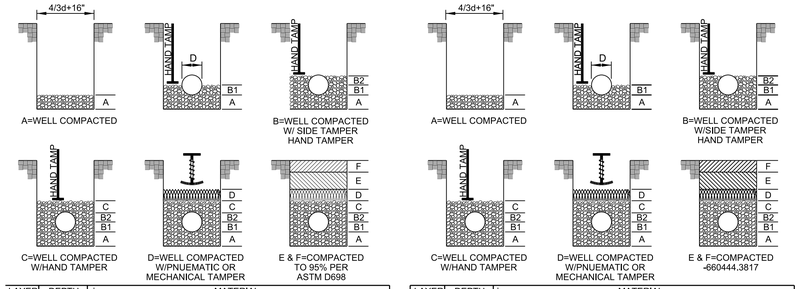


LAYER	DEPTH	MATERIAL
A	6"	CLASS 1 FOR PLASTIC PIPE, CLASS 1-4 FOR ALL OTHER PIPE *
B	VARIES	CLASS 1 FOR PLASTIC PIPE, CLASS 1-4 FOR ALL OTHER PIPE, TAMPED IN 6" MAXIMUM LAYERS.
C	6"	CLASS 1 FOR PLASTIC PIPE, CLASS 1-4 FOR ALL OTHER PIPE
D	6"	SELECTED BACKFILL MATERIAL-CLASS 1-4 FOR ALL PIPE, UNLESS OTHERWISE NOTED
E	VARIES	CLASS 1-4 FOR ALL PIPE UNLESS OTHERWISE NOTED, 75% OF BACKFILL MATERIAL MAY CONTAIN BROKEN STONES NOT EXCEEDING 6" IN DIAMETER-TAMPED IN 6" MAXIMUM LAYERS
F	12"	CLASS 1-4 FOR ALL PIPE-EXCEPT USE CLASS A, GRADE D CRUSHED STONE ACROSS OR ALONG EXISTING PAVEMENT UNLESS OTHERWISE NOTED **

* SEE SECTION 02221 FOR SPECIAL FOUNDATION PREPARATION ** SEE SECTION 02575

BACKFILLING & COMPACTION OF GRAVITY SEWER TRENCHES IN IMPROVED AREAS

LAYER	DEPTH	MATERIAL
A	6" MIN.	CLASS 1 FOR PLASTIC PIPE, CLASS 1-4 FOR ALL OTHER PIPE *
B	VARIES	CLASS 1 FOR PLASTIC PIPE, CLASS 1-4 FOR ALL OTHER PIPE, TAMPED IN 6" MAXIMUM LAYERS.
C	6"	CLASS 1 FOR PLASTIC PIPE, CLASS 1-4 FOR ALL OTHER PIPE
D	6"	SELECTED BACKFILL MATERIAL-CLASS 1-4 FOR ALL PIPE
E	VARIES	CLASS 1-4 FOR ALL PIPE, 75% OF BACKFILL MATERIAL MAY CONTAIN BROKEN STONES NOT EXCEEDING 6" IN DIAMETER-TAMPED IN 12" MAXIMUM LAYERS
F	12"	CLASS 3 OR 4 FOR ALL PIPE, FREE OF LARGE CLODS, VEGETABLE MATTER, DEBRIS STONE AND/OR ANY OTHER OBJECTIONABLE MATTER

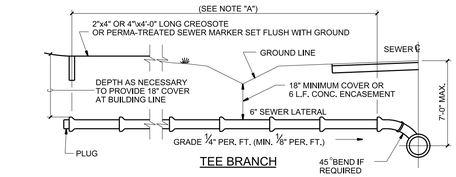
* SEE SECTION 02221 FOR SPECIAL FOUNDATION PREPARATION

BACKFILLING & COMPACTION OF GRAVITY SEWER TRENCHES IN UNIMPROVED AREAS

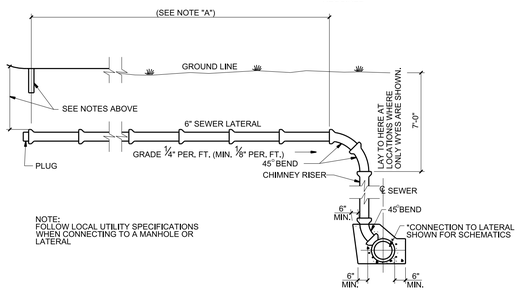
1. CLASS 1 MATERIALS: ANGULAR, , TO 1 INCH GRADED 1/4 TO 1 INCH GRADED STONE INCLUDING A NUMBER OF FILL MATERIALS THAT HAVE REGIONAL SIGNIFICANCE SUCH AS CRUSHED STONE, CINDERS, SLAG AND CRUSHED SHELLS.
2. CLASS 2 MATERIALS: COARSE SANDS AND GRAVELS WITH A MAXIMUM PARTICLE DIMENSION OF 1-1/2 INCH INCLUDING VARIOUSLY GRADED SAND AND GRAVELS CONTAINING SMALL PERCENTAGES OF FINES, GENERALLY GRANULAR AND NON-COHESIVE, EITHER WET OR DRY.
3. CLASS 3 MATERIAL: FINE SAND AND CLAYEY GRAVELS, INCLUDING FINE SANDS, SAND-CLAY MIXTURES, AND GRAVEL-CLAY MIXTURES.
4. CLASS 4 MATERIAL: SILT, SILTY CLAYS, AND CLAYS, INCLUDING INORGANIC CLAYS AND SILTS OF MEDIUM TO HIGH PLASTICITY AND LIQUID LIMITS.
5. CLASS 5 MATERIALS: ORGANIC SOILS, AS WELL AS SOIL CONTAINING FROZEN EARTH, DEBRIS, ROCKS LARGER THAN 1-1/2 INCHES AND OTHER FOREIGHN MATERIALS.

BEDDING AND BACKFILL MATERIAL CLASSIFICATION

N.T.S.



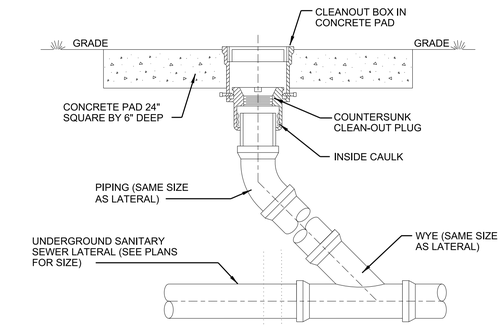
TEE BRANCH



TEE BRANCH FOR SEWER DEPTHS OF 7'-0" OR MORE
(10" DIAMETER OR SMALLER)

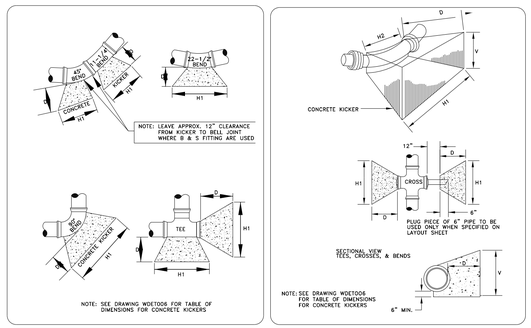
SANITARY SEWER LATERALS

NTS



SANITARY SEWER SERVICE LATERAL CLEAN-OUT

N.T.S.



METROPOLITAN GOVERNMENT OF NASHVILLE AND DAVIDSON COUNTY DEPARTMENT OF WATER AND SEWERAGE SERVICES		BLOCKING DETAIL (1 OF 2)
NOT TO SCALE	DATE: 4/10/95	DWG. NO. WDET007

METROPOLITAN GOVERNMENT OF NASHVILLE AND DAVIDSON COUNTY DEPARTMENT OF WATER AND SEWERAGE SERVICES		BLOCKING DETAIL (2 OF 2)
NOT TO SCALE	DATE: 4/17/95	DWG. NO. WDET009

TABLE OF DIMENSIONS FOR CONCRETE KICKERS

SIZE OF PIPE (In.)		2" & 2-¼"	3" & 4"	6"	8"	10"	12"	16"	18"	20"	24"	30"	36"
TAPPING SLEEVES & VALVES	H1	18"	24"	24"	36"	48"	54"	66"					
	H2	10"	12"	16"	18"	24"	30"	34"	36"	38"	42"	52"	58"
	V	12"	12"	18"	18"	18"	24"	36"					
	D	18"	18"	18"	18"	24"	24"	24"	24"	24"	24"	24"	24"
	cu. ft.	1.90	2.25	3.50	5.05	7.15	13.40	22.50					
90° BENDS	H1	18"	24"	30"	39"	54"	54"	69"					
	H2	10"	12"	16"	18"	32"	32"	48"	48"	48"	60"	72"	96"
	V	12	12"	18"	24"	24"	36"	48"					
	D	18"	18"	18"	18"	18"	24"	24"	24"	24"	24"	24"	24"
	cu. ft.	1.90	2.25	4.05	7.30	10.25	18.90	29.00					
45° BENDS	H1	18"	18"	24"	30"	24"	42"	48"					
	H2	6"	8"	10"	11"	18"	18"	30"	30"	40"	48"	48"	72"
	V	12"	12"	16"	18"	21"	24"	36"					
	D	18"	18"	18"	18"	18"	24"	24"	24"	24"	24"	24"	24"
	cu. ft.	1.50	1.60	3.20	3.95	4.60	9.60	17.00					
22-1/2° BENDS	H1	18"	18"	24"	24"	24"	24"	36"					
	H2	6"	8"	10"	11"	18"	18"	30"	30"	36"	42"	48"	72"
	V	12"	12"	16"	18"	21"	24"	27"					
	D	18"	18"	18"	18"	18"	24"	24"	24"	24"	24"	24"	24"
	cu. ft.	1.50	1.60	3.20	3.40	4.60	6.80	11.80					
11-1/4° BENDS	H1	18"	18"	24"	24"	24"	24"	27"					
	H2	6"	8"	10"	11"	18"	18"	24"	30"	40"	42"	48"	48"
	V	12"	12"	16"	16"	21"	21"	27"					
	D	18"	18"	18"	18"	18"	24"	24"					
	cu. ft.	1.50	1.60	3.20	3.40	4.60	6.10	9.10					

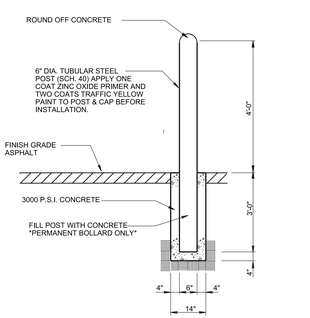
NOTE:
CONCRETE USED FOR BLOCKING SHALL BE (CLASS "A"-3500# PER SQ. IN.). EARTH PRESSURES ARE FIGURED AT (4000# PER SQ. FT.) BEARING AREA OF KICKERS SHALL BE INCREASED WHEN POURED AGAINST SAND, LOOSE FILL, WET EARTH, CINDERS, ETC.

TABLE BASED ON 225 P.S.I. OR 150 P.S.I. WORKING PRESSURE PLUS 50% WATER HAMMER

METROPOLITAN GOVERNMENT OF NASHVILLE AND DAVIDSON COUNTY DEPARTMENT OF WATER AND SEWERAGE SERVICES		TABLE OF DIMENSIONS
NOT TO SCALE	DATE: 12/31/97	DWG. NO. WDET006

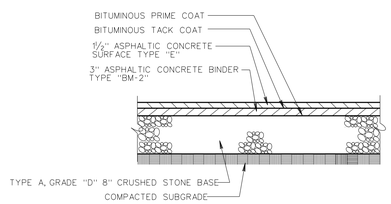
CONCRETE THRUST BLOCKING

N.T.S.



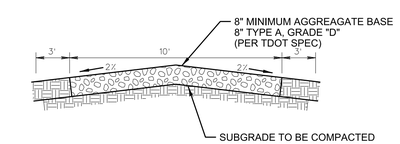
PERMANENT BOLLARD DETAIL

N.T.S.



ASPHALT PAVEMENT SECTION

N.T.S.



GRAVEL ROAD SECTION

N.T.S.

GRAVEL APRON

N.T.S.

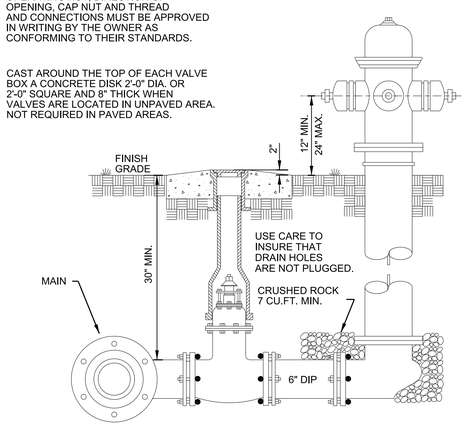
NOTE: DETAIL DOES NOT APPLY TO OFFICE BUILDINGS

GRADING @ BUILDING PAD

N.T.S.

OPERATING NUT, DIRECTION OF OPENING, CAP NUT AND THREAD AND CONNECTIONS MUST BE APPROVED IN WRITING BY THE OWNER AS CONFORMING TO THEIR STANDARDS.

CAST AROUND THE TOP OF EACH VALVE BOX A CONCRETE DISK 2'-0" DIA. OR 2'-0" SQUARE AND 8" THICK WHEN VALVES ARE LOCATED IN UNPAVED AREA. NOT REQUIRED IN PAVED AREAS.



BLOCK HYDRANT AS SHOWN ON CONCRETE THRUST BLOCKING DETAILS IN THIS SET.

NOTE: FIRE HYDRANT MAKE AND MODEL IS TO BE ONE THAT HAS BEEN APPROVED BY THE GOVERNING AUTHORITY.

FIRE HYDRANT ASSEMBLY

N.T.S.

BARGE WAGGONER SUMNER & CANNON, INC.
BWSC
10133 Sherrill Blvd., Suite 200, Knoxville, Tennessee 37932
PHONE (865) 637-2810 FAX (865) 673-8554

JAMES E. WISEMAN REGISTERED ENGINEER No. 116699 STATE OF TENNESSEE
11-10-14

SITE DETAILS

CONSTRUCTION PLANS
ARC
200 SMITH WAY, HARTSVILLE, TN 37074

DR.	CHK.	DATE	DESCRIPTION
WMB	JDS	06-27-14	ISSUED FOR ZONING REVIEW
WMB	JDS	08-01-14	ISSUED FOR PERMITS
WMB	JEW	08-08-14	ISSUED FOR PERMITS
WMB	JEW	09-09-14	ISSUED FOR CONSTRUCTION
WMB	JEW	11-10-14	ARAP REV. 3

C7.02

FILE NO. 35875-00

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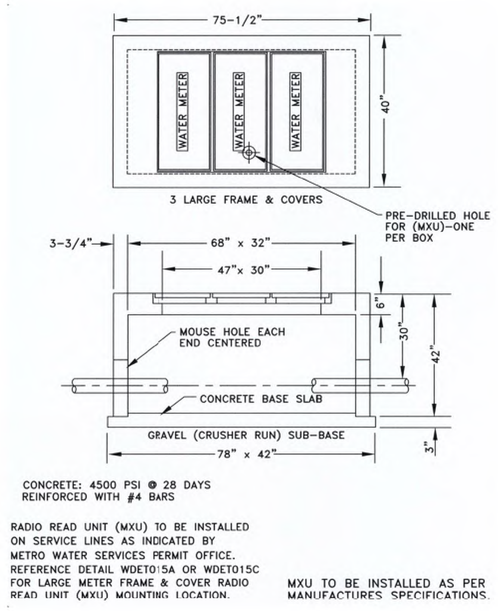
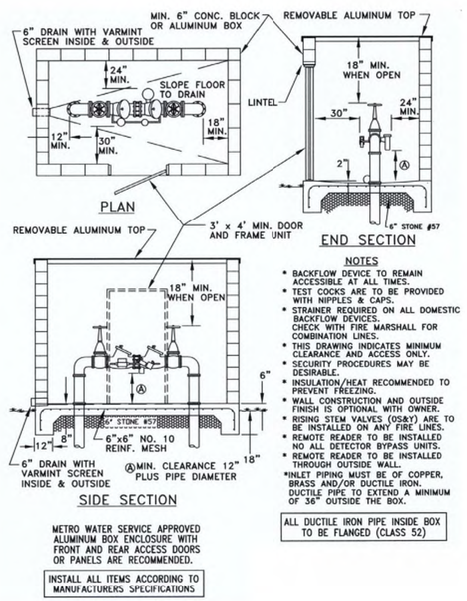
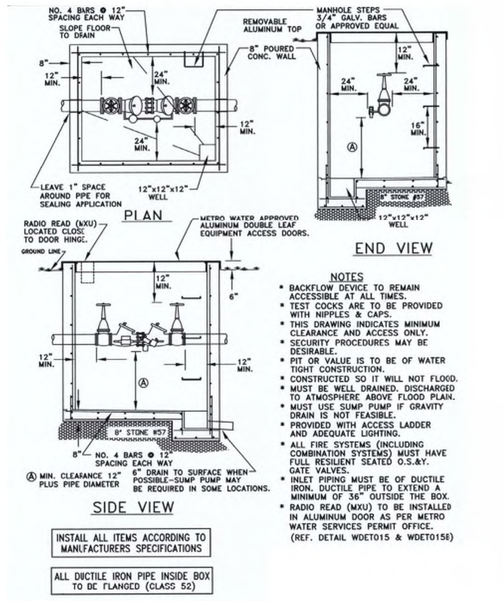


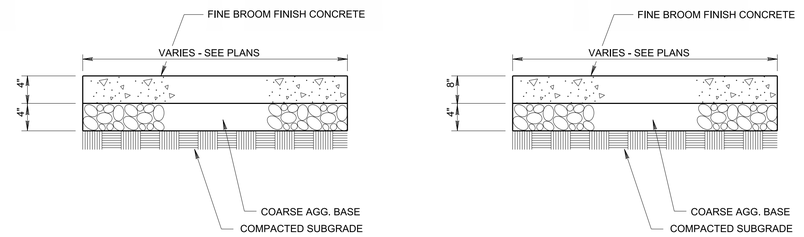
METER BOX FOR 3" METER
NTS



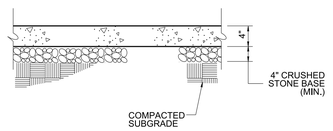
BACKFLOW PREVENTER BOX
NTS



BACKLOW PREVENTER VAULT
NTS



CONCRETE SECTIONS
N.T.S.



CONCRETE SIDEWALK
NTS

BWSC
BARGE WAGGONER SUMNER & CANNON, INC.
10133 Sherrill Blvd., Suite 200, Knoxville, Tennessee 37932
PHONE (865) 637-2810 FAX (865) 673-8554

JAMES F. WISEMAN REGISTERED ENGINEER 115699 STATE OF TENNESSEE
11-10-14

SITE DETAILS

CONSTRUCTION PLANS
ARC
200 SMITH WAY, HARTSVILLE, TN 37074

DR.	CHK.	DATE	DESCRIPTION
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WMB	JDS	08-01-14	ISSUED FOR PERMITS
WMB	JEW	08-08-14	ISSUED FOR PERMITS
WMB	JEW	09-09-14	ISSUED FOR CONSTRUCTION
WMB	JEW	11-10-14	ARAP REV. 3

C7.03

FILE NO. 35875-00

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wmbragley
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Attachment E
Wetland Preliminary Jurisdictional Determination

DEPARTMENT OF THE ARMY
NASHVILLE DISTRICT, CORPS OF ENGINEERS
3701 BELL ROAD
NASHVILLE, TENNESSEE 37214-2660

March 12, 2014

SUBJECT: File No. LRN-2013-01095; Four Lakes Regional Development Authority - PowerCom Site; Cumberland River Mile 284, Hartsville, Trousdale County, Tennessee

Four Lakes Regional Development Authority
Post Office Box 464
Hartsville, Tennessee 37074

Ladies and Gentlemen:

This letter is in regard to the Preliminary Jurisdictional Determination (PJD) report that was submitted to this office by your agent, ECS Central, PLLC, associated with the 502 acre parcel known as the PowerCom Industrial Center Hartsville, Trousdale County, Tennessee (Latitude 36.35314, Longitude -86.09268). This project has been assigned File No. LRN-2013-01095. Please refer to this number in any future correspondence regarding this project.

The report contains information regarding potential waters of the United States (WOUS) identified on the subject site. The report included correspondence indicating your preference for the proposal to be reviewed as a PJD.

The U.S. Army Corps of Engineers (USACE) has regulatory responsibilities pursuant to Section 404 of the Clean Water Act (33 U.S.C. 1344) and Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. 403). Under Section 10, the USACE regulates any work in, or affecting, navigable waters of the U.S. Under Section 404, the USACE regulates the discharge of dredged and/or fill material into WOUS, including wetlands.

A survey area of approximately 502 acres was inspected for the presence of WOUS. Based on a field review of the information provided, eight reaches of stream totaling 11,334 linear feet, 15.5 acres of open waters, 0.2 acres of the Cumberland River, and 39.61 acres of wetlands were found. This office has determined these waters **may** be jurisdictional WOUS in accordance with the Regulatory Guidance Letter for Jurisdictional Determinations issued by the USACE on June 26, 2008 (RGL No. 08-02). As indicated in the aforementioned guidance, this PJD is non-binding and cannot be appealed (33 C.F.R. 331.2) and only provides a written indication that WOUS, including wetlands, may be present on-site. For purposes of computation of impacts, compensatory mitigation requirements and other resource protection measures, a permit decision made on the basis of a PJD will treat all waters and wetlands that would be affected in any way by the permitted activity on the site as if they are jurisdictional WOUS. PJDs are advisory in nature and may not be appealed.

Enclosed with this letter are two copies of the PJD form and *Notification of Administrative Appeal Options and Process and Request for Appeal* form that explains available options regarding this determination. If you agree with the findings of this PJD and understand your options regarding the same, please sign and date both copies, retain one copy for your records and return one copy to this office within 30 days of receipt of this letter. You should submit the signed copy to the following address:

U.S. Army Corps of Engineers
Nashville District
3701 Bell Rd.
Nashville, Tennessee 37214
Attn: Mr. Casey Ehorn

Additionally, the USACE is preparing an approved jurisdictional determination for the "approved JD area" (wetland 20 and stream 9) on the attached drawing dated September March 12, 2013. This jurisdictional determination will be sent by separate letter when once we have finalized the documentation and completed the required coordination.

Please contact us if you would like to schedule a pre-application meeting to further discuss alternatives for site development and we can assist you in the avoidance and minimization of impacts to WOUS. If your development plan requires the discharge of material into WOUS, a Department of the Army Permit would be required.

We appreciate your awareness of the USACE Regulatory program. If you have any questions please contact Mr. Casey Ehorn at (615) 369-7506 or casey.h.ehorn@usace.army.mil .

Sincerely,

Forrest E. McDaniel
Acting Chief, Western Regulatory Section
Operations Division

Enclosures:

PJD Form (2 Copies)
Notification of Administrative Appeal Options and Process and Request for Appeal form

NOTIFICATION OF ADMINISTRATIVE APPEAL OPTIONS AND PROCESS AND REQUEST FOR APPEAL

Applicant: Maury County Chamber & Economic Alliance	File Number: LRN-2013-01095	Date: 3-12-14
Attached is:		See Section below
	INITIAL PROFFERED PERMIT (Standard Permit or Letter of permission)	A
	PROFFERED PERMIT (Standard Permit or Letter of permission)	B
	PERMIT DENIAL	C
	APPROVED JURISDICTIONAL DETERMINATION	D
X	PRELIMINARY JURISDICTIONAL DETERMINATION	E

SECTION I - The following identifies your rights and options regarding an administrative appeal of the above decision. Additional information may be found at http://www.usace.army.mil/CECW/Pages/reg_materials.aspx or Corps regulations at 33 CFR Part 331.

A: INITIAL PROFFERED PERMIT: You may accept or object to the permit.

- ACCEPT: If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.
- OBJECT: If you object to the permit (Standard or LOP) because of certain terms and conditions therein, you may request that the permit be modified accordingly. You must complete Section II of this form and return the form to the district engineer. Your objections must be received by the district engineer within 60 days of the date of this notice, or you will forfeit your right to appeal the permit in the future. Upon receipt of your letter, the district engineer will evaluate your objections and may: (a) modify the permit to address all of your concerns, (b) modify the permit to address some of your objections, or (c) not modify the permit having determined that the permit should be issued as previously written. After evaluating your objections, the district engineer will send you a proffered permit for your reconsideration, as indicated in Section B below.

B: PROFFERED PERMIT: You may accept or appeal the permit

- ACCEPT: If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.
- APPEAL: If you choose to decline the proffered permit (Standard or LOP) because of certain terms and conditions therein, you may appeal the declined permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

C: PERMIT DENIAL: You may appeal the denial of a permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

D: APPROVED JURISDICTIONAL DETERMINATION: You may accept or appeal the approved JD or provide new information.

- ACCEPT: You do not need to notify the Corps to accept an approved JD. Failure to notify the Corps within 60 days of the date of this notice, means that you accept the approved JD in its entirety, and waive all rights to appeal the approved JD.
- APPEAL: If you disagree with the approved JD, you may appeal the approved JD under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

E: PRELIMINARY JURISDICTIONAL DETERMINATION: You do not need to respond to the Corps regarding the preliminary JD. The Preliminary JD is not appealable. If you wish, you may request an approved JD (which may be appealed), by contacting the Corps district for further instruction. Also you may provide new information for further consideration by the Corps to reevaluate the JD.

SECTION II - REQUEST FOR APPEAL or OBJECTIONS TO AN INITIAL PROFFERED PERMIT

REASONS FOR APPEAL OR OBJECTIONS: (Describe your reasons for appealing the decision or your objections to an initial proffered permit in clear concise statements. You may attach additional information to this form to clarify where your reasons or objections are addressed in the administrative record.)

ADDITIONAL INFORMATION: The appeal is limited to a review of the administrative record, the Corps memorandum for the record of the appeal conference or meeting, and any supplemental information that the review officer has determined is needed to clarify the administrative record. Neither the appellant nor the Corps may add new information or analyses to the record. However, you may provide additional information to clarify the location of information that is already in the administrative record.

POINT OF CONTACT FOR QUESTIONS OR INFORMATION:

If you have questions regarding this decision and/or the appeal process you may contact:	If you only have questions regarding the appeal process you may also contact:
Casey Ehorn Nashville District, U.S. Army Corps of Engineers Regulatory Branch 3701 Bell Road Nashville, Tennessee 37214 (615) 369-7506; Casey.H.Ehorn@usace.army.mil	Appeals Officer U.S. Army Corps of Engineers Great Lakes and Ohio River Division 550 Main Street, Room 10032 Cincinnati, OH 45202-3222 TEL (513) 684-6212; FAX (513) 684-2460

RIGHT OF ENTRY: Your signature below grants the right of entry to Corps of Engineers personnel, and any government consultants, to conduct investigations of the project site during the course of the appeal process. You will be provided a 15 day notice of any site investigation, and will have the opportunity to participate in all site investigations.

	Date:	Telephone number:
_____ Signature of appellant or agent.		

PRELIMINARY JURISDICTIONAL DETERMINATION FORM

BACKGROUND INFORMATION

A. REPORT COMPLETION DATE FOR PRELIMINARY JURISDICTIONAL DETERMINATION (JD): 3-12-14

B. NAME AND ADDRESS OF PERSON REQUESTING PRELIMINARY JD: ECS Central, PLLC on behalf of Four Lakes Regional Development Authority, Post Office Box 464, Hartsville, Tennessee 37074

C. DISTRICT OFFICE, FILE NAME, AND NUMBER: LRN-2013-01095

D. PROJECT LOCATION(S) AND BACKGROUND INFORMATION: (USE THE ATTACHED TABLE TO DOCUMENT MULTIPLE WATERBODIES AT DIFFERENT SITES)

State: TN County/parish/borough: Trousdale City: Hartsville
Center coordinates of site (lat/long in degree decimal format):
Lat. 36.346863, Long. -86.088052°

Universal Transverse Mercator:

Name of nearest waterbody: Unnamed tributaries to the Cumberland River

Identify (estimate) amount of waters in the review area:
Non-wetland waters: 11,334 linear feet: varies width (ft) and/or 15.7 acres.
Cowardin Class: Riverine and Lacustrine
Stream Flow: Perennial and Intermittent
Wetlands: 39.61 acres.
Cowardin Class: PFO and PEM

Name of any water bodies on the site that have been identified as Section 10 waters:
Tidal: x
Non-Tidal: Cumberland River

E. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):

☐ Office (Desk) Determination. Date:
☒ Field Determination. Date(s): 11 November 2013

1. The Corps of Engineers believes that there may be jurisdictional waters of the United States on the subject site, and the permit applicant or other affected party who requested this preliminary JD is hereby advised of his or her option to request and obtain an approved jurisdictional determination (JD) for that site. Nevertheless, the permit applicant or other person who requested this

preliminary JD has declined to exercise the option to obtain an approved JD in this instance and at this time.

2. In any circumstance where a permit applicant obtains an individual permit, or a Nationwide General Permit (NWP) or other general permit verification requiring "pre-construction notification" (PCN), or requests verification for a non-reporting NWP or other general permit, and the permit applicant has not requested an approved JD for the activity, the permit applicant is hereby made aware of the following: (1) the permit applicant has elected to seek a permit authorization based on a preliminary JD, which does not make an official determination of jurisdictional waters; (2) that the applicant has the option to request an approved JD before accepting the terms and conditions of the permit authorization, and that basing a permit authorization on an approved JD could possibly result in less compensatory mitigation being required or different special conditions; (3) that the applicant has the right to request an individual permit rather than accepting the terms and conditions of the NWP or other general permit authorization; (4) that the applicant can accept a permit authorization and thereby agree to comply with all the terms and conditions of that permit, including whatever mitigation requirements the Corps has determined to be necessary; (5) that undertaking any activity in reliance upon the subject permit authorization without requesting an approved JD constitutes the applicant's acceptance of the use of the preliminary JD, but that either form of JD will be processed as soon as is practicable; (6) accepting a permit authorization (e.g., signing a proffered individual permit) or undertaking any activity in reliance on any form of Corps permit authorization based on a preliminary JD constitutes agreement that all wetlands and other water bodies on the site affected in any way by that activity are jurisdictional waters of the United States, and precludes any challenge to such jurisdiction in any administrative or judicial compliance or enforcement action, or in any administrative appeal or in any Federal court; and (7) whether the applicant elects to use either an approved JD or a preliminary JD, that JD will be processed as soon as is practicable. Further, an approved JD, a proffered individual permit (and all terms and conditions contained therein), or individual permit denial can be administratively appealed pursuant to 33 C.F.R. Part 331, and that in any administrative appeal, jurisdictional issues can be raised (see 33 C.F.R. 331.5(a)(2)). If, during that administrative appeal, it becomes necessary to make an official determination whether CWA jurisdiction exists over a site, or to provide an official delineation of jurisdictional waters on the site, the Corps will provide an approved JD to accomplish that result, as soon as is practicable. This preliminary JD finds that there *"may be"* waters of the United States on the subject project site, and identifies all aquatic features on the site that could be affected by the proposed activity, based on the following information:

SUPPORTING DATA. Data reviewed for preliminary JD (check all that apply - checked items should be included in case file and, where checked and requested, appropriately reference sources below):

☐ Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant: .

☐ Data sheets prepared/submitted by or on behalf of the applicant/consultant.
  ☐ Office concurs with data sheets/delineation report.
  ☐ Office does not concur with data sheets/delineation report.

☐ Data sheets prepared by the Corps: .

☐ Corps navigable waters' study: .

☐ U.S. Geological Survey Hydrologic Atlas: .
  ☐ USGS NHD data.
  ☐ USGS 8 and 12 digit HUC maps.

☒ U.S. Geological Survey map(s). Cite scale & quad name: TN-DIXON SPRINGS.

☐ USDA Natural Resources Conservation Service Soil Survey. Citation:

☐ National wetlands inventory map(s). Cite name: .

☐ State/Local wetland inventory map(s): .

☒ FEMA/FIRM maps: .

☐ 100-year Floodplain Elevation is: (National Geodectic Vertical Datum of 1929)

☐ Photographs: ☐ Aerial (Name & Date): .

or ☐ Other (Name & Date): .

☐ Previous determination(s). File no. and date of response letter: .

☒ Other information (please specify): Map prepared by the Corps.

IMPORTANT NOTE: The information recorded on this form has not necessarily been verified by the Corps and should not be relied upon for later jurisdictional determinations.

3/27/14

Signature and date of
Regulatory Project Manager
(REQUIRED)

Signature and date of
person requesting preliminary JD
(REQUIRED, unless obtaining
the signature is impracticable)

Site number	Latitude	Longitude	Cowardin Class	Estimated amount of aquatic resource in review area	Class of aquatic resource
Stream 1	36.36041	-86.09616	R3	2290 ft	non-wetland; non Section 10
Stream 2	36.36261	-86.09524	R3	255 ft	non-wetland; non Section 10
Wetland 1	36.35214	-86.0975	PFO	25 acre	wetland; non Section 10
Wetland 2	36.36256	-86.0949	PFO	1.29 acre	wetland; non Section 10
Wetland 3	36.3601	-86.0957	PFO	.3 acre	wetland; non Section 10
Wetland 4	36.35873	-86.0965	PFO	.2 acre	wetland; non Section 10
Wetland 5	36.35839	-86.0971	PFO	.15 acre	wetland; non Section 10
Stream 3	36.35874	-86.0946	R3	2125 ft	non-wetland; non Section 10
Stream 4	36.35915	-86.0919	R3	485 ft	non-wetland; non Section 10
Wetland 7	36.35932	-86.0918	PFO	1.38 acre	wetland; non Section 10
Wetland 8	36.35878	-86.0934	PFO	.22 acre	wetland; non Section 10
Stream 5	36.35782	-86.0948	R4	279 ft	non-wetland; non Section 10
Wetland 9	36.35803	-86.0946	PFO	1.74 acre	wetland; non Section 10
Stream 6	36.34826	-86.0879	R3	2798 ft	non-wetland; non Section 10
Stream 7	36.35338	-86.086	R4	2341 ft	non-wetland; non Section 10
Stream 8	36.35252	-86.086	R6	480 ft	non-wetland; non Section 10
Wetland 10	36.35274	-86.0851	PFO	.74 acre	wetland; non Section 10
Wetland 11	36.35568	-86.0848	PEM	.05 acre	wetland; non Section 10
Wetland 12	36.35598	-86.0857	PEM	.05 acre	wetland; non Section

					10
Wetland 13	36.35412	-86.0867	PFO	.6 acre	wetland; non Section 10
Wetland 14	36.353	-86.0872	PFO	.2 acre	wetland; non Section 10
Wetland 15	36.3527	-86.087	PEM	.2 acre	wetland; non Section 10
Wetland 16	36.35145	-86.0865	PFO	.37 acre	wetland; non Section 10
Wetland 17	36.34725	-86.0884	PFO	2.85 acre	wetland; non Section 10
Wetland 19	36.34529	-86.0892	PFO	1.64 acre	wetland; non Section 10
Wetland 18	36.34524	-86.0864	PFO	.4 acre	wetland; non Section 10
Pond	36.34554	-86.0949	L1	15.5 acre	non-wetland; non Section 10
Cumberland River	36.35514	-86.0906	R2	.2 acre	non-wetland; Section 10

Figure 1: Jurisdictional Determination Map for LRN-2013-01095

Attachment F
ECS Central, PLLC Report of Stream and Wetland Delineation

September 17, 2013

Mr. Charly Lyons
Four Lake Regional Development Authority
P.O. Box 464 100 W. Main Street
Hartsville, Tennessee 37074

Reference: Report of Stream and Wetland Delineation
PowerCom Industrial Center
Hartsville, Trousdale County, Tennessee
ECS Project No. 26-2235

Dear Mr. Lyons:

ECS Central, PLLC (ECS) is pleased to submit this report of the jurisdictional waters/wetland delineation for the PowerCom Industrial Center located in Hartsville, Trousdale County, Tennessee. This report summarizes our findings for the site.

Background

The site is located in Hartsville, Trousdale County, Tennessee (Figure 1). The site consists of portions of a larger tract, which contains approximately 502 acres. According to the Tennessee Property Assessor website, the site includes two separate parcels identified as parcel identification numbers (PINs) 034022.02 and 021022.01. The limits of the project area were provided to ECS by Mr. Don Rigsby of Four Lake Regional Development Authority.

Portions of the site are developed with warehouses and light industrial structures. The southern portion of the site was staged for a nuclear power plant that was never completed. The majority of this area has been previously graded. Low-lying herbaceous vegetation and saplings are located in the areas that have been previously disturbed. The remainder of the site contains fields and wooded land.

ECS was contracted to delineate jurisdictional waters including ponds, streams and wetlands on the site. Wetlands are defined by the U.S. Army Corps of Engineers (USACE) and the United States Environmental Protection Agency as "those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and under normal circumstances, do support a prevalence of vegetation typically adapted for life in saturated soil conditions." In order for an area to be classified as wetland, hydrophytic vegetation, hydric soils, and wetland hydrology indicators must be present.

Literature Review

We reviewed the USGS Topographic Map, the Soil Survey of Trousdale County, the U.S. Fish and Wildlife Service - National Wetlands Inventory Map and the Federal Emergency Management Agency (FEMA) Flood Insurance Rate (FIRM).

- The USGS Topographic Map (Figure 1) depicts an unnamed tributary to the Cumberland River located along the western site boundary. The Cumberland River is located immediately south of the site. Other surface waters are not depicted on the site. The map shows several drainage swales on the site that could contain surface waters or wetlands.

- The USDA Soil Survey of Trousdale County (Figure 2) indicates that soils on the site have been mapped as Arents (Ae), Udorthents (UD), Barfield-Rock outcrop-Ashwood complex (BfC), Arington Silt Loam (Ar) and Armour Silt Loam (AmB). Arents and Udorthents are soils that occur on hillslopes. Udorthents consist of moderately well drained to excessively drained soils that have been disturbed by cutting or filling, and areas that are covered by buildings and pavement. The areas are mostly larger than 5 acres. The parent material for these soils are typically mine spoils or fill material derived from limestone. The Barfield-Rock outcrop-Ashwood complex consists of well drained soils that occur on hillslopes. Arington Silt loam consists of well drained soils that occur on flood plains. Armour Silt Loam consists of well drained soils that occur on stream terraces. These soil map units are not identified on the Hydric Soils List of Trousdale County.

- We reviewed the U.S. Fish and Wildlife Service, National Wetlands Inventory Map of the site (Figure 3). Freshwater ponds and emergent freshwater wetlands are depicted on the southern portion of the site and along the western site boundary. Other surface waters and/or wetlands are not depicted on the remainder of the site.

- We were unable to review the online FEMA Flood Insurance Rate Map (FIRM). The Tennessee Property Assessor utilizes FEMA FIRMs and other information provided by FEMA to generate online digital floodplain maps of Tennessee. The Tennessee Property Assessor online digital floodplain map identifies the majority of the site in Zone X, areas that are outside of the 100 year floodplain. Portions of the site along the western and southern boundaries were identified as Zone AE, areas that base flood elevations have been determined and Zone A, areas that no base flood elevations have been determined. Areas along the Cumberland River were identified as floodway areas in Zone AE and Zone X.

Site Reconnaissance

Mr. Michael Brame, and Mr. Caleb Nelson of ECS conducted the site reconnaissance on August 14 and 15, 2013. During the reconnaissance, the site was observed for evidence of streams, ponds and wetlands. Ponds are located on the southern and western portions of the site. The ponds are connected to jurisdictional streams/wetlands. Areas located down gradient of the pond on the southern portion of the site have been disturbed by an access road that leads to the Cumberland River. Sheet flow was observed in this area. Based on our observations, the ponds would likely be considered jurisdictional features by the USACE. The ordinary high water marks of the ponds were marked in the field with blue and white striped surveyor tape.

Several streams cross the site. In most areas, the streams have ordinary high water marks, defined beds and banks and contained flowing water at the time of our reconnaissance. Based on our observations, the majority of the streams are perennial. The upper reaches of the streams contained low flow and were dry in areas. Based on our observations, these stream segments are intermittent. A stream located on the eastern portion of the site does not have

clear hydrologic connection to down-gradient streams or wetlands. There is potential that this stream will not be considered jurisdictional by the USACE. ECS flagged the centerlines of the streams during our site reconnaissance. The centerlines of the streams were marked in the field with blue and white striped surveyor tape.

Wetland hydrology indicators, hydrophytic vegetation and hydric soils were observed in pockets adjacent to the streams and in other drainage swales on the site. The wetland pockets are separated from surrounding uplands by distinct topographic, vegetation and/or soil breaks. Upland areas surrounding the wetland pockets have bright soils that appear to be well drained to depths of at least twelve inches. Wetland Determination Data Forms supporting our opinions are included as attachments.

The southern portion of the site is significantly disturbed. The soils have been cut, compacted and otherwise disturbed. Saturated soils, sheet flow, inundation and other wetland characterstics were observed in the disturbed areas. However, the soils do not contain hydric soil indicators in many areas. The areas still appear to function as wetlands and contain a prevalence of hydrophytic vegetation. Therefore, these areas were delineated as wetlands. However, concurrence from the USACE will be required to determine if the disturbed areas will be regulated as wetlands. The wetland boundaries were marked in the field with red and white striped surveyor tape.

Figure 4 illustrates the approximate locations of the site, ponds, streams, wetlands, our flag numbers and data points. The figures are based on our field notes and should only be used for preliminary planning purposes. Our delineation is subject to change during the agency verification. The verification meeting is scheduled with the USACE on September 20, 2013. Following the verification, the flags should be surveyed to determine the exact locations and extent of the jurisdictional areas.

Watershed Classification

According to the TDEC-WPC, the site is located in the Cumberland River Basin. An unnamed tributary to the Cumberland River runs along the western boundary of the site. According to the TDEC-WPC, the unnamed tributary has not been fully assessed. Based on conversations with Ms. Amy Fritz of the TDEC-WPC, the unnamed tributaries to the Cumberland River that cross portions of the site do not discharge to the portion of the Cumberland River that is included on the 303 (d) List of Impaired Waters of Tennessee and, therefore, would not be subject to a minimum 60 foot vegetated buffer. However, a minimum 30 foot vegetated buffer is required adjacent to the streams and potentially the ponds that are located on the site. In addition, local buffers may be required.

General Discussion

Section 404 of the Clean Water Act regulates the discharge of dredge and fill materials into waters of the United States (lakes, rivers, ponds, streams, etc.), including wetlands. Waters of the United States include the territorial seas, navigable coastal and inland lakes, rivers and streams, intermittent streams, and wetlands. Activities that could be regulated under Section 404 include the placement of fill for construction of roadways; residential, commercial or industrial structures; and the construction of water retention ponds along tributaries. The EPA

and the U.S. Army Corps of Engineers jointly administer the Section 404 program. Section 401 of the Clean Water Act grants each state the authority to approve, condition, or deny any Federal permits that could result in a discharge to State waters.

Streams, ponds and wetlands are regulated by the USACE and TDEC-WPC. Permits will be required prior to impacting wetlands or open waters, including ponds, lakes and perennial or intermittent streams. Mitigation and stormwater management plans will be a condition of any permits issued for the site. Buffers are required adjacent to streams and water bodies.

For impacts to one-half acre or more of wetlands or to more than 300 linear feet of stream channel, an individual permit (IP) may be required. An IP requires a habitat analysis, alternative site analysis, project justification, plans to avoid and minimize impacts, and a proposed mitigation plan. Depending on the habitat analysis and the extent of impacts, and Environmental Impact Statement may be required by the U.S. Army Corps of Engineers. An IP allows for a public comment period and may require 4 to 18 months to obtain depending on conditions arising during the U.S. Army Corps of Engineers review and public comment period.

Closure

ECS appreciates the opportunity to provide wetland services for your project. Please contact us at (615) 885-4983 if you have any questions concerning this report.

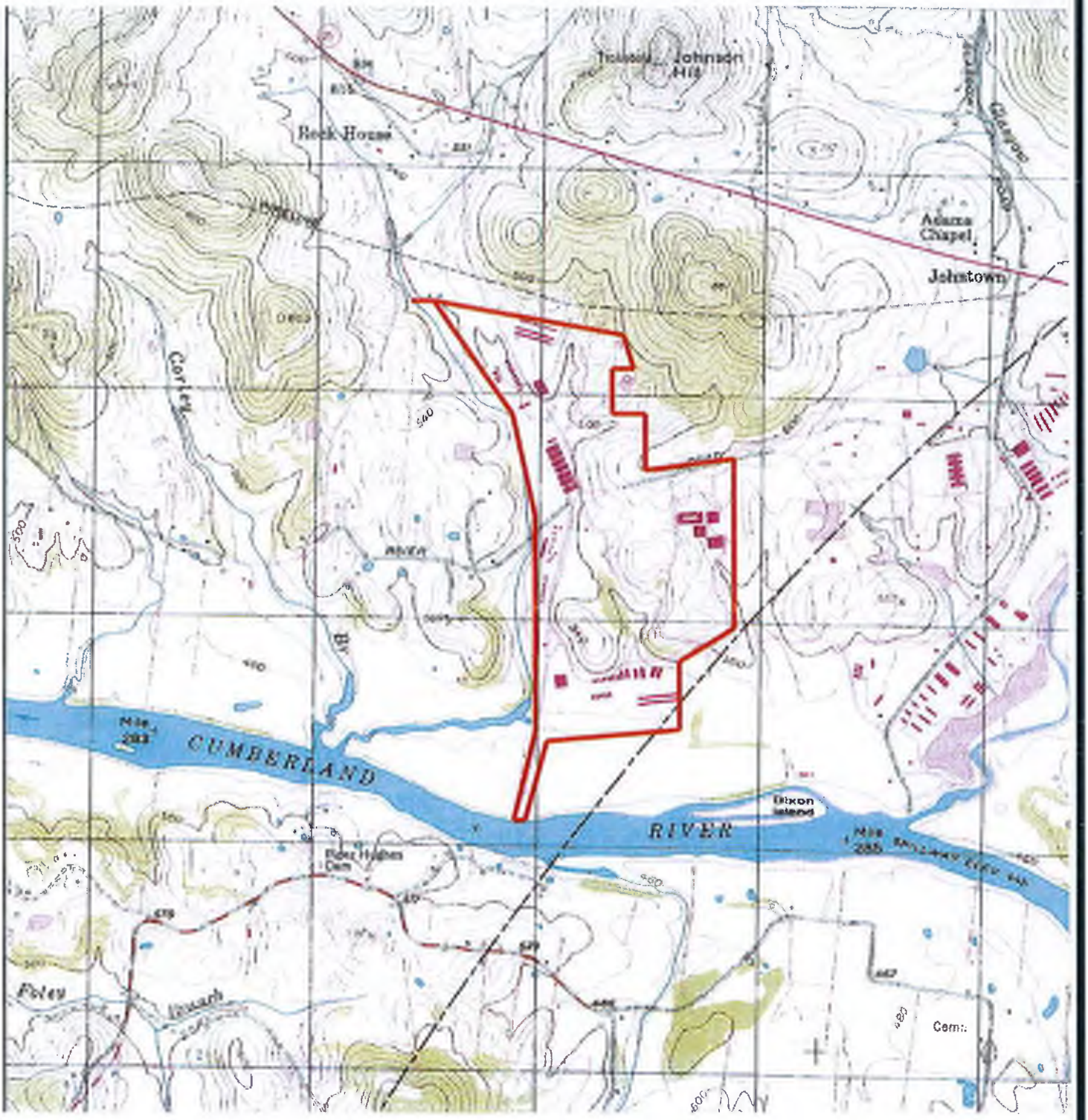
Sincerely,

ECS CENTRAL, PLLC

Caleb Nelson/KO
Caleb Nelson
Project Engineer

Michael Brame
Michael Brame, PWS
Senior Environmental Principal

Attachments: Figure 1 – Site Location Map
Figure 2 – Soil Map
Figure 3 – NWI Map
Figure 4 – Stream/Wetland Flag Location Map
USACE Wetland Determination Data Forms



APPROXIMATE SITE BOUNDARY

SOURCE:

USGS TOPOGRAPHIC MAP
DIXON SPRINGS, TN QUADRANGLE
DATED 1994

SCALE 1"=2,000'

FIGURE 1
SITE LOCATION MAP

POWERCOM INDUSTRIAL
FOUR LAKE REGIONAL BOULEVARD
HARTSVILLE, TENNESSEE

ECS PROJECT NO. 26-2235

SOURCE:

USDA SOIL SURVEY OF TROUSDALE COUNTY

FIGURE 2

SOIL MAP
POWERCOM INDUSTRIAL
FOUR LAKE REGIONAL BOULEVARD
HARTSVILLE, TENNESSEE

ECS PROJECT NO. 26-2235

SOURCE:

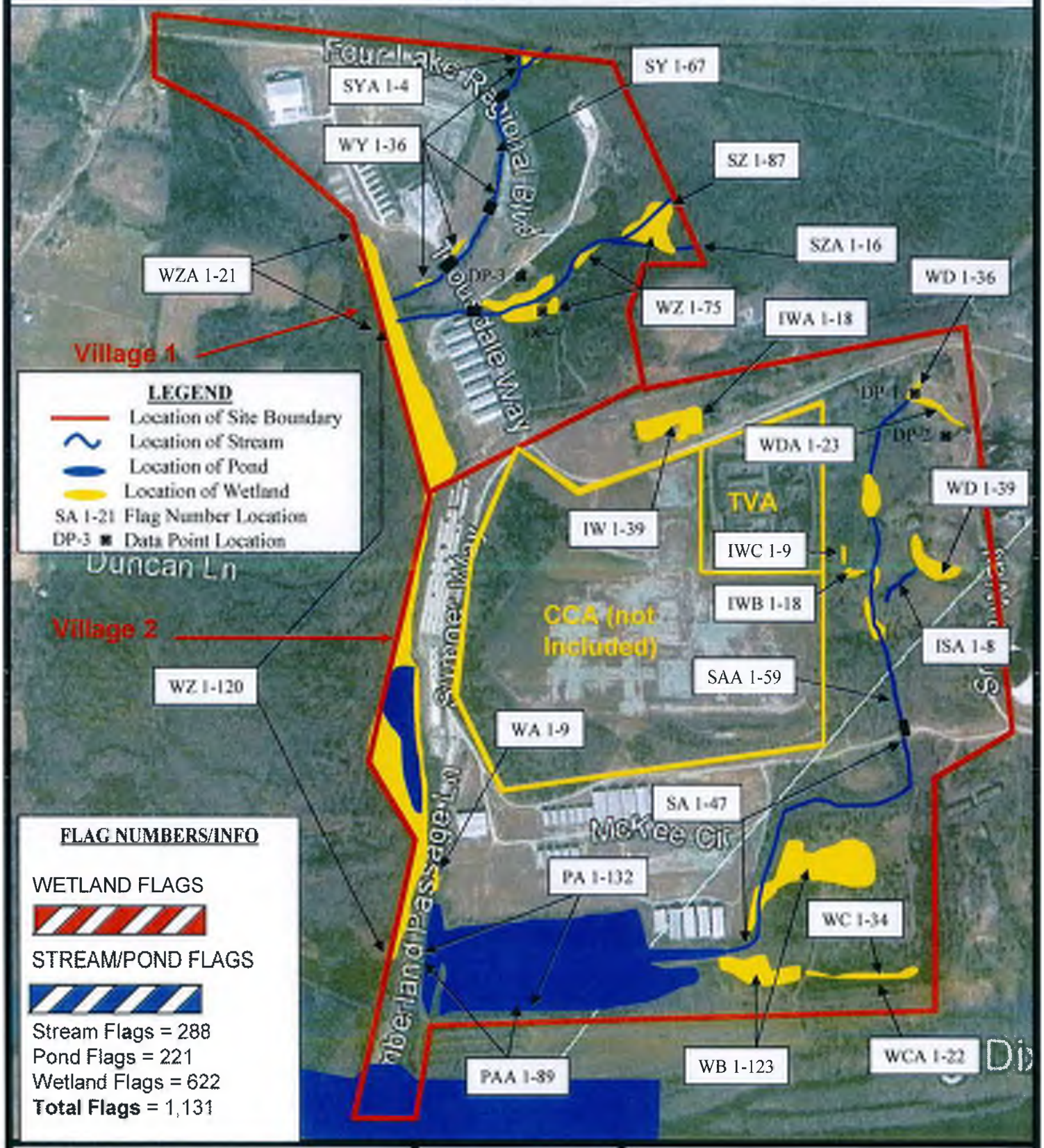
US FISH AND WILDLIFE SERVICES,
WETLAND MAPPER

FIGURE 3

NWI MAP
POWERCOM INDUSTRIAL
FOUR LAKE REGIONAL BOULEVARD
HARTSVILLE, TENNESSEE

ECS PROJECT NO. 26-2235

THE STREAM/POND/WETLAND LOCATIONS SHOWN ON THIS MAP ARE APPROXIMATE. THEY HAVE BEEN DELINEATED BY ECS. THEY HAVE BEEN VERIFIED BY THE U.S ARMY CORPS OF ENGINEERS AND THEY HAVE NOT BEEN SURVEYED.



SOURCE:

EDR: AERIAL PACKAGE, 2010
AERIAL PHOTOGRAPH AND ECS FIELD NOTES

SCALE 1"~ 880'

FIGURE 4

STREAM/WETLAND FLAG LOCATION MAP
POWERCOM INDUSTRIAL
FOUR LAKE REGIONAL BOULEVARD
HARTSVILLE, TENNESSEE

ECS PROJECT NO. 26-2235

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Porter/Com Industrial Center City/County: Hartsville / Trousdale Sampling Date: 8/15/13

Applicant/Owner: Four Lakes Regional Development Authority State: TN Sampling Point: DP-1

Investigator(s): Bruce Nelson, ECS Section, Township, Range: ______

Landform (hillslope, terrace, etc.): Swale Local relief (concave, convex, none): ______ Slope (%): ______

Subregion (LRR or MLRA): ______ Lat: ______ Long: ______ Datum: ______

Soil Map Unit Name: ______ NWI classification: ______

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ___ (If no, explain in Remarks.)

Are Vegetation ___, Soil X, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes ___ No X

Are Vegetation ___, Soil ___, or Hydrology ___ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No ___
Hydric Soil Present?	Yes ___	No X
Wetland Hydrology Present?	Yes X	No ___

Is the Sampled Area within a Wetland? Yes X No ___

Remarks: Soils have been disturbed and are irregular. The sampling point is located within a wetland.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- X Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes X	No ___	Depth (inches): ___
Water Table Present?	Yes X	No ___	Depth (inches): .5"
Saturation Present? (includes capillary fringe)	Yes X	No ___	Depth (inches): .5"

Wetland Hydrology Present? Yes X No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Wetland hydrology indicators are present.

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: DP-1

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. None observed			
2.			
3.			
4.			
5.			
6.			
7.			
	= Total Cover		
50% of total cover:	20% of total cover:		

Sapling/Shrub Stratum (Plot size: 30')			
1. None observed			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	= Total Cover		
50% of total cover:	20% of total cover:		

Herb Stratum (Plot size: 30')			
1. Carex sp.	10	X	FACW
2. Typha latifolia	10	X	OBL
3. Juncus sp.	10	X	FACW
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	30 = Total Cover		
50% of total cover: 15	20% of total cover: 6		

Woody Vine Stratum (Plot size: 30')			
1. None observed			
2.			
3.			
4.			
5.			
	= Total Cover		
50% of total cover:	20% of total cover:		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species	x 2 =	
FAC species	x 3 =	
FACU species	x 4 =	
UPL species	x 5 =	
Column Totals: (A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

__ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

__ 3 - Prevalence Index is ≤3.0[1]

__ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

__ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes X No __

Remarks: (include photo numbers here or on a separate sheet.)

All dominant vegetation is hydrophytic.

SOIL Sampling Point: DP-1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	7.5Y 4/3	60	[illegible]	40			L	
0-12	10YR 4/6	40					L	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ____ No X

Remarks:

Hydric soil indicators are not present. However, soils have been disturbed top and are irregular.

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Riverview Industrial Center City/County: Hendersonville Henderson Sampling Date: 8/15/13

Applicant/Owner: Four Lakes Regional Development Authority State: NC Sampling Point: DP-1

Investigator(s): Breeze/Nelson, ECS Section, Township, Range:

Landform (hillslope, terrace, etc.): Swale Local relief (concave, convex, none): _____ Slope (%): _____

Subregion (LRR or MLRA): _____ Lat: _____ Long: _____ Datum: _____

Soil Map Unit Name: _____ NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil X, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes _____ No X

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No _____	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks: Soil has been disturbed and is irregular. The sampling point is not located within a wetland.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No X	Depth (inches): —
Water Table Present?	Yes _____	No X	Depth (inches): 7/12"
Saturation Present? (includes capillary fringe)	Yes _____	No X	Depth (inches): 7/12"

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Wetland hydrology indicators are not present.

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: DP-2

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. None observed			
2.			
3.			
4.			
5.			
6.			
7.			
	= Total Cover		
50% of total cover:	20% of total cover:		
Sapling/Shrub Stratum (Plot size: 30')			
1. None observed			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	= Total Cover		
50% of total cover:	20% of total cover:		
Herb Stratum (Plot size: 30')			
1. Poa annua	40	X	FAC
2. Erodium sp.	40	X	FAC
3. Carex sp.	5		FAC
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	85 = Total Cover		
50% of total cover:	20% of total cover:		
Woody Vine Stratum (Plot size: 30')			
1. None observed			
2.			
3.			
4.			
5.			
	= Total Cover		
50% of total cover:	20% of total cover:		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 66 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes X No ___

Remarks: (Include photo numbers here or on a separate sheet.)

The dominant vegetation is hydrophytic.

SOIL Sampling Point: PP-2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	2.5Y 4/4	80					L	
0-12	7.5YR 4/6	20					L	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: ___

Depth (inches): ___

Hydric Soil Present? Yes ___ No X

Remarks:

Hydric soil indicators are not present. Soil is disturbed and not regular.

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Powerton Industrial Center City/County: Hurleyville / Forestdale Sampling Date: 8/15/13

Applicant/Owner: Ulster County Regional Development Authority State: In Sampling Point: DP-3

Investigator(s): Rose / Nelson, ECS Section, Township, Range:

Landform (hillslope, terrace, etc.): Swale Local relief (concave, convex, none): Slope (%):

Subregion (LRR or MLRA): Lat: Long: Datum:

Soil Map Unit Name: NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No	**Is the Sampled Area within a Wetland?** Yes	No X
Hydric Soil Present?	Yes	No X	
Wetland Hydrology Present?	Yes	No X	

Remarks: Wetland hydrology & hydric soil indicators are not present. The sampling point is not located within a wetland.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches): —
Water Table Present?	Yes ___	No X	Depth (inches): 7/12"
Saturation Present? (includes capillary fringe)	Yes ___	No X	Depth (inches): 7/12"

Wetland Hydrology Present? Yes ___ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Wetland hydrology indicators are not present.

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: DP-3

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1. Liquidambar styraciflua	20	X	FAC
2. Liriodendron tulipifera	20	X	FAC
3.			
4.			
5.			
6.			
7.			
	40 = Total Cover		
50% of total cover: —	20% of total cover: —		

Sapling/Shrub Stratum (Plot size: 30')			
1. Acer rubrum			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	= Total Cover		
50% of total cover:	20% of total cover:		

Herb Stratum (Plot size: 30')			
1. Solidago virgata	30	X	FAC
2. Aster heterophyllus	5		FAC
3. Smilax rotundifolia	5		FAC
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	40 = Total Cover		
50% of total cover: 20	20% of total cover: 8		

Woody Vine Stratum (Plot size: 30)			
1. None observed			
2.			
3.			
4.			
5.			
	= Total Cover		
50% of total cover:	20% of total cover:		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ 1 · Rapid Test for Hydrophytic Vegetation

X 2 · Dominance Test is >50%

___ 3 · Prevalence Index is ≤3.0[1]

___ 4 · Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes X No ___

Remarks: (Include photo numbers here or on a separate sheet.)

The dominant vegetation is hydrophytic.

SOIL Sampling Point: DP-3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	7.5YR 4/6	100					L	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ___ No X

Remarks:

Hydric soil indicators are not present.

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Powerroom Industrial Center City/County: Hurtsville / Trousdale Sampling Date: 8/15/13

Applicant/Owner: 4 Lakes Regional Development Center State: TN Sampling Point: DP-#4

Investigator(s): Brown/Nelson, ECS Section, Township, Range:

Landform (hillslope, terrace, etc.): Swale Local relief (concave, convex, none): _____ Slope (%): 2

Subregion (LRR or MLRA): _____ Lat: _____ Long: _____ Datum: _____

Soil Map Unit Name: _____ NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No _____	**Is the Sampled Area within a Wetland?**	Yes X No _____
Hydric Soil Present?	Yes X No _____		
Wetland Hydrology Present?	Yes X No _____		

Remarks: The 3 sampling criteria are present. The sampling point is located within a wetland.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- X Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No X	Depth (inches): L
Water Table Present?	Yes _____	No X	Depth (inches): 7/12"
Saturation Present? (includes capillary fringe)	Yes _____	No X	Depth (inches): 7/12"

Wetland Hydrology Present? Yes X No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Wetland hydrology indicators are present.

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: DP-4

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Fraxinus pennsylvanica	20	X	FACW
2.			
3.			
4.			
5.			
6.			
7.			
	20 = Total Cover		
50% of total cover: 10	20% of total cover: 4		

Sapling/Shrub Stratum (Plot size: 30')			
1. None observed			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	= Total Cover		
50% of total cover:	20% of total cover:		

Herb Stratum (Plot size: 30')			
1. Lolium perenne	40	X	FAC
2. Parthenocissus quinquefolia	2		~~FACU~~ OBL
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	42 = Total Cover		
50% of total cover: 21	20% of total cover: 8.4		

Woody Vine Stratum (Plot size: 30')			
1. None observed			
2.			
3.			
4.			
5.			
	= Total Cover		
50% of total cover:	20% of total cover:		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

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Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes X No ___

Remarks: (Include photo numbers here or on a separate sheet.)

The dominant vegetation is hydrophytic

SOIL Sampling Point: DP-4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 4/2	95	7.5YR 4/6	5	C	RM	L	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No ___

Remarks:

Hydric soil indicators are present.